



ANNUAL REPORT
UPON THE
HEALTHINESS OF THE
CITIZENS,
AND UPON THE
SANITARY CONDITION
OF THE
CITY OF NORWICH,
FOR THE YEAR
1900.

BY
H. COOPER PATTIN,

DOCTOR IN MEDICINE, MASTER OF ARTS, BACHELOR IN SURGERY,
AND A DIPLOMATE IN PUBLIC HEALTH OF THE UNIVERSITY OF CAMBRIDGE,
AUTHOR OF THE "RITUAL OF HEALTH,"
AN EX-UNIVERSITY EXTENSION LECTURER,
PHYSICIAN TO THE CORPORATION HOSPITALS FOR INFECTIOUS DISEASES,
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Vice-Chairman :

MR. COUNCILLOR A. M. STEVENS.

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"	R. J. MALLETT	"	J. E. H. WATSON
"	J. MASON	"	J. WILLIMENT

ISOLATION HOSPITAL.

Sub-Committee :

The CHAIRMAN, VICE-CHAIRMAN,
Messrs. BARNARD, BREESE, DAY, GALLARD, MASON,
MATTHEWS, MURIEL, AND STACY.

Matron : Miss WATKINSON.

PREFACE.

TO THE CHAIRMAN AND MEMBERS OF THE
NORWICH URBAN SANITARY AUTHORITY.

GENTLEMEN,

By a General Order of the Local Government Board, dated 23rd March, 1891, it is prescribed that every Medical Officer of Health shall :—

“ Make an Annual Report to the Sanitary Authority up to the end of December in each year, comprising a summary of the action taken, or which he has advised the Sanitary Authority to take, during the year for preventing the spread of disease, and an account of the sanitary state of his district generally at the end of the year.

“ The Report shall also contain an account of the enquiries which he has made as to the conditions injurious to health existing in the district, and of the proceedings in which he has taken part, or advised under any statute, so far as such proceedings relate to those conditions.

“Also an account of the supervision exercised by him, or on his advice, for sanitary purposes over places and houses that the Sanitary Authority have power to regulate, with the nature and results of any proceedings which may have been so required and taken in respect of the same during the year.”

“The Report shall also record the action taken by him, or on his advice, during the year in regard to offensive trades, to dairies, cow sheds, and milk shops, and to factories and workshops.”

“The Report shall also contain tabular statements of the sickness and mortality within the district, classified according to diseases and localities.”

This Report is made in fulfilment of the above regulations.

The various statistical calculations have been made, as in previous years, upon the estimates furnished by the Registrar-General. It will be remembered that I have on several occasions expressed my opinion that these estimates were too high. The unofficial results of the census confirm the greater accuracy of my own estimation of our population. To bring the figures into actual accordance with the statistical data unofficially furnished it will be necessary to slightly *increase* the birth and death rates—roughly to the extent of $\cdot 2$ per 1000, when dealing with the total population.

The *birth rate* and the *death rate* for 1900 are below the averaged rates recorded in the other great towns; as is also the *zymotic death rate*.

The *infant mortality rate* is above the averaged rate of the other great towns, being 178·25 per 1,000 births in Norwich, and 172·25 in the other great towns; there was a slight fall of ·75 per 1,000 births in our rate as compared with that of 1899, while the averaged fall in the 33 great towns amounted to 9·25 per 1,000. A result which is in no sense satisfactory to ourselves, albeit there are some ten or dozen of the great towns with a worse record. I give a detailed list of the certified causes of death of the children who died in infancy during the last year in the body of this Report, and direct attention to the number of premature births. I hope that the exertions of the new official who will shortly be appointed may bring about some reduction of this lamentable annual loss of the newly-born; especially of those infants whose deaths may reasonably be attributed to imperfect care and to improper feeding.

The births of 139 illegitimate children were registered in 1900, and during the year 39 illegitimate children died under one year of age—a death rate of 285 per 1,000 births, or more than one-fourth of the number born. The percentage of infants, legitimate and illegitimate, who at the time of death were insured, was 45 per cent., a reduction of 11 from the percentage which was recorded in 1899.

The *death rate from Tuberculous Diseases* for 1900 is higher than it was in 1899, and the *comparative mortality figure* for 1900 is 912. There was a marked fall in the number of notifications of Scarlet Fever, the actual number received being 77, as compared with 388 in 1899. Of Diphtheria, too, there was a marked diminution in the number of notifications, the figures being 65, as compared with 123. There was an even more gratifying reduction in the number of deaths from this disease, which fell from 1 to every 3 cases attacked in 1899, to 1 to every $5\frac{1}{2}$ last year. I attribute this lessening in the fatality of Diphtheria among us to the more **extended** use of anti-toxins, and the lessening of the number of notifications (in part) to the prophylactic use of the same *protective* (as well as curative) agents. As I have pointed out in previous reports, I am strongly of opinion that "in the practical treatment of Diphtheria, where for any reason a patient cannot be removed to a Hospital, anti-toxin should be injected into those (as well as the patient), who are likely to come into contact with the case; if need be, into all the dwellers of the affected habitation." I have myself followed this course with, so far, no bad effects and with this striking result:—that in no household, no matter how crowded, has a single secondary seizure with Diphtheria been recorded, where the inmates have been protected with a prophylactic injection. In one household the mother refused for herself and her three remaining children the proffered

injection of anti-toxin. Two days later a second child developed the disease, and then she sent for me to administer the prophylactic, and no further spreading of the disease occurred. There was an increase in the number of notifications of Enteric (Typhoid) Fever, as compared with the preceding year, the figures being 163 and 144. On the other hand, the death rate fell from 14·0 per cent. in 1899 to 7·4 per cent. in 1900. There were only two notifications of Puerperal Fever, and in each instance the victim died. In 1899 there were five of such fatal cases. Seven notifications of Erysipelas were sent in, and three deaths from this disease were recorded. There were eight deaths from Measles, of which disease there was little ; but Whooping Cough played havoc amongst the children, carrying off no less than 66 victims. A gross of deaths were attributable to Diarrhœa, and Influenza was certified to have directly or indirectly caused 82 people to “shuffle off this mortal coil.” On the whole, the record for the year is one which may be described as negatively satisfactory.

The new buildings at the Fever Hospital are, so far as the pavilions are concerned, now structurally complete, and will be brought into use during the current year. The introduction into all the wards of pipes for steam heating promises to get rid of what has been in the past a terrible source of worry—our inability to keep the wards at a sufficiently high temperature, and at the same time adequately ventilated during the cold weather. As our

Hospital accommodation will, when the alterations are completed, be more than doubled, and as we propose to treat three diseases concurrently, a corresponding enlargement of the staff and a considerable increase in the establishment charges must be expected. The services which may be confidently anticipated justify us in believing that these requisitions will be ungrudgingly complied with. I desire to record here my personal indebtedness to the matron and the nurses for their loyal and cheerful services in trying circumstances.

The persistent efforts which the sub-committee made to procure a site for a Small-Pox Hospital were at length successful; and when the Greenboro' Farm cottages and buildings have been suitably fitted and furnished, the city will possess a Small-Pox Hospital well situated and well adapted for its special purpose.

The water supplied by the company has maintained its usual standard of excellence. The "Housing Problem" is being dealt with patiently but persistently. During the year I signed 13 certificates condemning as unfit for human habitation that number of dwellings. The Housing Committee has taken steps to provide land upon which habitations suited to the requirements of the poorer classes can be erected, and the Courts and Yards Committee continues its labours to improve those portions of the city which come within its official purview. The progress already made is encouraging and satisfactory.

The Report of the Public Analyst (which is appended) records the result of his analyses of the samples of water, milk, and food, &c., submitted to him during the year. The Chief Inspector's Report also furnishes a summary of the practical sanitary work carried out during the year, and states what has been done to improve the condition of dairies, cow-sheds, milk-shops, slaughter-houses, common lodging-houses, work-shops, &c. I am glad to be able to report that the new Inspector under the Canal Boats Act (Mr. Mollett), has made very satisfactory progress with the work of getting wherries, &c., inspected and registered as directed by the Act.

It is always a source of pleasure to me to place on record, as I do once more, my indebtedness to the Chief and Assistant Inspectors, and the Office Clerks, for their ungrudging assistance. I do not think I ought to permit the opportunity to pass without making mention of the organising skill which enables Mr. Brooks to keep efficient the scavenging of the City.

The Chairman, Vice-Chairman, and all the Members of the Health and its Subordinate Committees have added to my obligations.

(Signed)

H. COOPER PATTIN.

April 30th, 1901.

METEOROLOGICAL NOTES.

THE SEASONS.

The following tables show the mean temperature and rainfall for the four Seasons, together with those of the five previous years, and of a twenty-year approximate average. Winter comprises the three months December to February; Spring, March to May; Summer, June to August; and Autumn, September to November.

TEMPERATURE.

SEASONS.	1895.	1896.	1897.	1898.	1899.	1900.	20 years' average.	Departure of 1900 from average.
	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
Winter ...	34·7	39·6	38·3	41·3	42·6	37·4	37·8	— 0·4
Spring ...	47·6	48·0	46·9	45·8	46·2	45·3	46·2	— 0·9
Summer ...	60·4	61·1	61·9	59·7	61·9	61·6	60·2	+ 1·4
Autumn ...	51·4	48·5	50·3	54·0	51·2	51·6	49·5	+ 2·1
Year ...	48·4	49·3	49·5	50·5	49·8	49·6	48·4	+ 1·2

RAINFALL.

SEASONS.	1895.	1896.	1897.	1898.	1899.	1900.	20 years' average.	Departure of 1900 from average.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Winter ...	7·35	3·28	7·86	4·11	5·82	7·42	6·02	+ 1·40
Spring ...	4·15	5·18	5·05	6·18	6·84	4·26	5·21	— 0·95
Summer ...	7·51	4·88	4·17	6·90	3·52	8·77	7·17	+ 1·60
Autumn ...	7·13	8·49	6·42	5·65	8·31	5·32	8·50	— 3·18
Year ...	24·91	23·28	22·07	23·33	23·94	26·99	26·90	+ 0·09

It will be seen from the above that the Winter and Spring were colder than the average, although the deficiency was not great. The Summer, notwithstanding the great heat of July, did not result on

the mean in being quite so warm as in 1899 or in 1897. This was due to the abnormally cold weather in August. The Autumn was the warmest but one of the series. Rainfall was slightly excessive in the Winter and Summer, slightly deficient in the Spring and largely deficient in the Autumn.

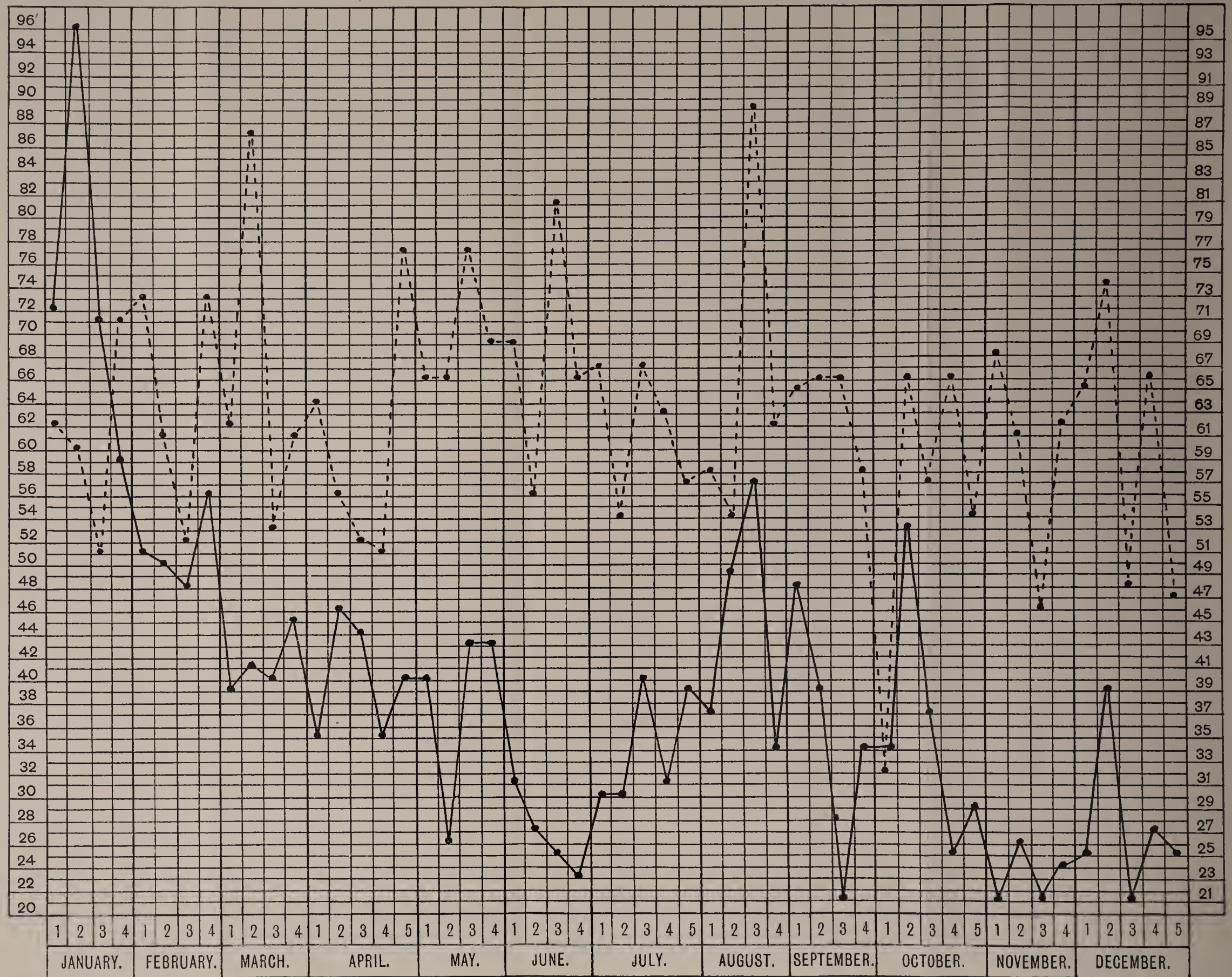
THE YEAR.

“A rather cold and protracted Winter was followed by a later Spring than usual, the month of May being particularly cold. The sudden outbursts of abnormal heat in April, July, September, and October, were very remarkable, occurring as they did in a season which gave no continued great heat. The maximum of 75 in both April and October, were almost as notable as the outburst in July, and it is also worthy of remark that the heat wave of July came almost exactly midway between the two shorter periods of warmth in April and October. While the previous Summer gave us three and a half months of almost continuous heat and fineness, the hot weather in the Summer of 1900 lasted but three weeks, during which there were warmer days than during all the previous long and protracted Summer, and the sudden change to cold and wet with the advent of August and just as harvest was commencing was a most unpleasant and unlooked for sequel. The season was very mild to the end of the year with much humidity, no snow, and but little frost. There was a great prevalence of thunderstorms during the summer, some of them being unusually severe. While the rainfall of the year was in close agreement with the average, the number of days on which rain fell was greater than for many years past.”

1900.

Gross recorded number of DEATHS from all causes, BLACK —●—

" " " " BIRTHS, BLACK DASHES —●—



DEMOGRAPHICAL STATISTICS.

<i>Enumerated Population at the Census of 1891</i>	...	...	100,970
Estimated Population in the middle of 1900	...	...	114,855
Area in Statute Acres	...	...	7,558
Density of population (<i>i.e.</i> , number of persons per acre)			15.2
Average number of persons per acre in the 33 great towns	...	...	33.8
<i>Total number of Births registered in 1900</i>	..	...	3,250
Representing a Birth-rate of	...	28.4	per 1,000
Average Birth-rate of the 33 great towns being	29.4	„	
<i>Total number of Deaths registered in 1900</i>	...	...	2,012
Representing a gross recorded Death-rate of		17.6	per 1,000
Deducting Deaths in Norwich of 28 non-residents	17.4	„	
*“Corrected Death-rate” for the year	...	16.8	„
†Average Death-rate in the 33 great towns	...	19.5	„
‡Comparative Mortality figure	...	912	„
Average Norwich Death-rate for the previous 5 years, 1895 to 1899 (inclusive)	...	18.25	„
<i>Deaths from the seven principal Zymotic Diseases numbered</i>	...	...	238
Representing a Zymotic Death-rate of	...	2.0	per 1,000
Average Zymotic Death-rate in 33 great towns being	...	2.5	„
Last year the figures were	...	2.4 and 2.8	per 1,000

*The “Corrected Death-rate” signifies the Death-rate which would obtain in Norwich if the local age and sex distribution were the same as those of the country generally.

†Estimated from the Registrar-General’s Quarterly Reports.

‡Taking 1,000 as the mortality figure of England and Wales as a whole.

The Deaths of Norwich Citizens from Zymotic Diseases, included :—

	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Puerperal Fever.	Erysipelas.	Influenza.
Under 5 years of age	2	7	—	7	67	141	—	—	5.
Over 5 years of age	4	5	12	1	—	3	2	3	81.

A glance at the above table will show how very large a proportion of the deaths occurred in children under five years of age, and also how great a number of these succumbed to Whooping Cough and Diarrhœa.

The Deaths under one year of age numbered 577, representing a death-rate of 5·0 per 1,000 of the population at all ages.

The Infant Mortality Rate (i.e., the proportion of deaths under one year of age to every 1,000 births) was... .. 178·25

In the 33 great towns it averaged 172·25

This is, for us, a slightly more satisfactory absolute result than that of last year, though relatively other towns a worse one; the figures in 1899 being 179 and 182 respectively. A special report gives detailed information.

The Death-rate between the ages of 1 and 5 years was 1·7 per 1,000 of the population at all ages, the same as in 1899.

The Death-rate between the ages of 1 to 60 was 7·1 per 1,000 living. In 1899 this was 7·25.

The average rate in the 33 great towns being 10·6* per 1,000 living. In 1899 this was 10·9.

*Estimated from the Registrar-General's Quarterly Report.

The Death-rate at and above 60 years of age was 69·2 per 1,000 living. In 1899 it was 62·75.

The average rate in 33 great towns being 79·7* per 1,000 living. In 1899 it was 80·0.

These remained satisfactory features; and again proved the accuracy of the estimate I made in 1893, viz., that we had in Norwich a higher proportion of elderly people than was to be found in the other great towns—a testimony in itself to the life-prolonging influence of the Norwich climate *for those who survive their first quinquennium*.

NORWICH SPECIAL DEATH-RATES FOR 1900.

(The Registrar-General not having, as yet issued his Annual Report, I am unable to give special rates for the 33 great towns.)

	Per 1,000 of the population at all ages.	In 1899.	In 1898.
From all Tuberculous Diseases	... 2·0	1·6	1·8
„ Tuberculosis of the Lungs (Phthisis)	1·2	1·0	1·0
„ Respiratory Diseases excluding Phthisis	... 2·6	2·4	2·5
„ Heart Diseases	... 1·8	1·7	1·8
„ Scarlet Fever	... 0·05	0·7	0·2
„ Diphtheria	... 0·1	0·3	0·12
„ Enteric (Typhoid) Fever	... 0·08	0·2	0·4
„ Puerperal Fever	... 0·01	0·05	0·06
„ Erysipelas	... 0·02	0·02	0·03
„ Measles	... 0·06	0·04	0·68
„ Whooping Cough	... 0·6	0·4	0·27
„ Diarrhoea	... 1·2	2·3	1·8
„ Rheumatic Fever	... 0·2	0·1	0·007
„ Influenza	... 0·7	0·3	0·24

The Deaths from Lung Diseases, excluding Phthisis (Tuberculosis of Lungs commonly called “Consumption”) occurred:

In East Wymer	154	From Heart Diseases	71
„ West Wymer	152	„ „	142

*Estimated from the Registrar-General's Quarterly Reports.

The Registered Births numbered in East Wymer, 1674 ; West Wymer, 1570.

In East Wymer the births in the second quarter again exceeded in number those recorded in any other. In West Wymer the births were most numerous in the first quarter. In East Wymer there were fewer males than females born during the year, while in West Wymer this feature was reversed. There was a slight excess of females over males for the City as a whole.

The following Deaths occurred in *Public Institutions* :

	At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 65	65 and upwards
Norfolk and Norwich Hospital ...	96	2	11	14	14	43	12
The Union Infirmary	138	8	1	4	13	32	80
The Isolation Hospital	3	0	2	1	0	0	0
Jenny Lind Infirmary	4	0	2	1	1	0	0
*The Prison ..	0	0	0	0	0	0	0
The Barracks ...	2	1	0	0	1	0	0

I have prepared differentiated death-rates (see overleaf) for the separate Parishes in the City ; these “special area” death-rates should, apart from their statistical interest, lead the Sanitary Authority to devote increased attention to the most insanitary of the districts under its jurisdiction.

Comparing East Wymer with West Wymer Registration District we get the following results.

The birth-rate in East Wymer was 30·5 per 1,000 of the population at all ages.

The birth-rate in West Wymer was 26·4 per 1,000 of the population at all ages.

*This institution retains its pre-eminence as the healthiest dwelling we provide for our people.

The death-rate (from all causes) in East Wymer was 16·7 per 1,000 of the population at all ages.

The death-rate (from all causes) in West Wymer was 18·4 per 1,000 of the population at all ages.

The gross Zymotic death-rate in East Wymer was 2·1 per 1,000 of the population at all ages.

The gross Zymotic death-rate *in West Wymer was 2·0 per 1,000 of the population at all ages.

The death rate from Tuberculous Diseases in East Wymer was 2·0 per 1,000 of the population at all ages.

The death-rate from Tuberculous Diseases in West Wymer was 2·0 per 1,000 of the population at all ages.

The infant mortality-rate in East Wymer was 181 per 1,000 births.

The infant mortality-rate in West Wymer was 174·6 per 1,000 births.

Or, stating the same facts in words: the East Wymer had a higher birth-rate, a higher death-rate from Zymotic Diseases, a higher infant mortality-rate, a lower general death-rate than and as low a death-rate from Tuberculous Diseases as the West Wymer* Registration District.

Inquest cases amounted to 6·1 per cent. of deaths from all causes.

In the 33 great towns the average was 7·6 per cent.

Deaths in Public Institutions amounted to 12·1 per cent.

In the 33 great towns the average was 22·1 per cent.

Uncertified deaths (i.e. death certificate not signed by a registered Medical Practitioner) amounted to 1·0 per cent.

Average in 33 great towns, 1·2 per cent.

* The Isolation Hospital, Norfolk and Norwich Hospital, Jenny Lind Infirmary, and Union Infirmary, are all in the West Wymer Registration District.

The 2,012 deaths from all causes registered in 1900 were distributed as follows:—

	At all ages.	Under 1 year.	1 and under 5.	5 and under 15	15 and under 25	25 and under 65	65 and upwards
*East Wymer ...	908	303	111	25	22	199	248
†West Wymer ...	1104	274	86	35	53	278	378
Deaths occurring within the district among persons not belonging thereto ...	28	—	2	1	3	15	7

At the Census in 1891, East Wymer contained 47,936 people; †West Wymer, 53,034. Assuming the rate of increase to have progressed in the same proportion in these districts, the population of each in the middle of 1900 would be (approximately): *East Wymer, 54,528; †West Wymer, 60,327.

Deaths from Zymotic Diseases.

	Scarlet Fever.	Diphtheria.	Enteric (Typhoid) Fever.	Puerperal Fever.
In East Wymer	2	2	1	0
„ West Wymer	4	8	8	2

	Erysipelas.	Measles.	Whooping Cough.	Influenza.	Diarrhœa.
In East Wymer	1	3	29	50	77
„ West Wymer	2	0	77	36	19

The Deaths from Tuberculous Diseases were distributed:—

In East Wymer from Phthisis	56.	Other Tuberculous Diseases	54
„ West Wymer	„ 88.	„	„ 44

*Conisford and Coslany are now included in the East Wymer Registration District.
 †The Norfolk and Norwich, Jenny Lind, and Isolation Hospitals, and the Union Infirmary are all in the West Wymer Registration District.

Death Rates per 1,000 of the Population (at all ages).

Estimated Population 1900.	PARISH.	At all Ages.	Under 1 year.	1 and under 5.	65 and upwards.	Zymotic Diseases.	Tubercu- lous Diseases.	Respiratory Diseases.	Heart Diseases.
803	All Saints	9·9	—	—	7·3	1·2	—	—	—
832	S. Andrew	10·8	3·7	1·2	—	—	—	—	—
3180	S. Augustine	11·6	2·02	1·2	2·8	1·2	2·4	0·3	1·8
2288	S. Benedict	13·5	6·9	1·3	2·4	3·05	2·4	0·86	0·86
7821	S. Clement (without) S. Clement (within)	15·4	6·9	1·4	2·8	4·07	2·04	3·7	1·07
675	S. Edmund	17·7	7·4	—	5·9	1·4	—	1·4	—
847	S. Ethelred	21·2	8·2	5·9	2·6	3·3	3·3	3·3	1·1
1700	S. Geo. Colegate	18·0	2·4	3·0	9·0	4·2	1·2	4·2	1·8
748	S. Geo. Tombland	11·7	1·3	1·3	7·8	—	1·3	3·9	3·9
1531	S. Giles	11·05	·65	·65	6·5	1·3	1·3	3·9	1·3
640	S. Gregory	3·0	—	—	3·0	—	—	1·5	—
739	S. Helen (with the Great Hospital) ..	42·9	—	—	39·0	15·6	—	2·6	3·9
417	S. J. Maddermarket	9·2	—	2·3	2·3	—	4·6	2·3	2·3
3109	S. J. Sepulchre	13·8	4·8	1·3	2·7	1·2	1·3	2·7	1·3
1199	S. J. Timberhill	23·2	7·2	4·0	4·8	2·4	3·2	4·8	2·4
1702	S. James	49·9	22·6	9·2	8·12	12·7	6·12	1·74	1·16
1981	S. Julian	13·0	5·0	·5	2·5	2·5	2·0	1·5	·6
551	S. Lawrence	14·4	5·4	1·8	—	1·8	—	—	1·8
648	S. Margaret	12·0	3·0	4·5	—	4·5	3·0	1·5	—
787	S. Martin-at-Palace	7·2	—	1·2	1·2	1·2	—	2·4	1·2
2759	S. Martin-at-Oak	9·0	2·4	1·5	2·7	2·1	1·3	2·7	—
1807	S. Mary-at-Coslany	10·0	2·5	1·5	2·5	1·5	—	1·5	·5
821	S. Michael-at-Coslany	9·6	4·8	2·4	1·2	1·2	2·4	1·2	—
196	S. Michael-at-Plea	5·1	—	—	—	—	—	—	—
1814	S. Michael-at-Thorn	11·5	4·5	·5	2·0	2·5	2·0	2·0	—
5176	S. Paul	10·4	2·1	1·3	1·5	·4	1·0	1·6	·5
344	S. Peter-at-Hungate	23·2	8·7	—	11·6	—	—	2·9	—
2363	S. Peter Mancroft	9·6	·8	·4	4·0	·8	·4	2·4	3·6
3147	S. Peter-per-Mountergate	9·6	·9	·6	5·4	·9	·3	2·1	2·1
790	S. Peter Southgate	3·6	1·2	—	1·2	—	—	—	—
1551	S. Saviour	9·0	1·8	1·2	5·4	·6	·6	1·2	—
339	S. Simon and S. Jude	8·7	—	8·7	—	—	—	2·9	—
4076	S. Stephen (with N. & N. Hospital) ..	25·2	2·6	1·4	4·4	1·4	1·8	2·4	3·6
787	S. Swithin	13·2	3·6	—	1·2	—	1·2	2·4	—
2162	Eaton	9·6	2·8	·8	3·2	1·6	1·6	1·2	1·6
254	Earlham	21·6	3·9	3·9	—	3·9	—	3·9	—
3448	*Heigham (with Union, Infirmary, and Isolation Hospital)	14·9	3·3	1·07	6·4	2·0	1·8	2·4	2·3
821	Hellesdon (part of)	7·3	1·2	—	—	1·2	—	1·2	—
3444	Pockthorpe (with Cavalry Barracks)	7·2	3·2	1·8	1·2	1·0	·2	1·4	—
5939	Thorpe Hamlet (with Britannia Barracks and Prison)	8·7	1·8	·6	2·3	·9	1·2	1·0	·4
329	Trowse, Carrow, and Bracondale) ..	—	—	—	—	—	—	—	—
557	Cathedral Precincts (S. Mary-in- Marsh)	8·5	—	—	8·5	—	—	—	—
22	On Boats and Barges (Wensum) ..	—	—	—	—	—	—	—	—
9729	Lakenham	10·2	2·8	·8	3·2	·8	1·3	2·0	·5

* Includes St. Bartholomew, St. Philip, Trinity, and St. Thomas, Heigham.

DEATHS IN SEPARATE PARISHES.

Enumerated Population at 1891 Census.	PARISH.	At all Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65	65 and upwards	Zymotic diseases.	Tubercular diseases.	Respiratory diseases.	Heart diseases.	Inquests.
706	All Saints	8	—	—	—	—	2	6	1	—	—	—	—
720	S. Andrew	9	3	1	—	—	5	4	—	—	—	—	—
2419	S. Augustine	38	7	4	3	4	11	9	4	8	1	6	1
1982	S. Benedict.. ..	31	16	3	1	—	6	3	7	5	2	2	4
6876	S. Clement (without) S. Clement (within)	121	54	15	3	4	23	22	32	16	23	8	8
593	S. Edmund.. ..	12	5	—	—	1	2	4	1	—	1	—	1
745	S. Ethelred.. ..	18	7	5	—	—	2	2	2	3	3	3	1
1486	S. Geo. Colegate	30	4	5	—	—	6	15	7	2	8	3	2
658	S. Geo. Tombland.. ..	9	1	1	—	—	1	6	—	1	3	3	1
1346	S. Giles'	17	1	4	2	—	—	10	2	2	6	2	—
565	S. Gregory	2	—	—	—	—	—	2	—	—	1	—	—
585	S. Helen (with the Great Hospital	33	—	—	—	—	3	30	12	—	2	3	—
367	S. J. Maddermarket ..	4	—	—	—	—	2	1	—	2	1	1	—
2734	S. J. Sepulchre	46	16	1	2	—	14	9	4	5	9	5	5
1054	S. J. Timberhill	29	9	5	—	1	8	6	3	4	6	3	5
1497	S. James	85	39	16	4	4	8	14	22	14	—	3	2
1742	S. Julian	26	10	1	1	2	7	5	5	4	3	1	3
485	S. Lawrence	8	3	1	—	1	3	—	1	—	—	1	—
570	S. Margaret	8	2	3	—	—	3	—	3	2	1	—	—
692	S. Martin-at-Palace ..	6	—	1	—	—	4	1	1	—	2	1	1
2426	S. Martin-at-Oak	30	8	5	—	3	5	9	7	5	9	—	2
1131	S. Mary-at-Coslany ..	20	5	3	1	—	6	5	3	—	3	1	6
723	S. Michael-at-Coslany ..	8	4	2	—	—	1	1	1	2	1	—	1
158	S. Michael-at-Plea ..	1	—	—	—	—	1	—	—	—	—	—	—
1595	S. Michael-at-Thorn ..	21	9	1	1	—	6	4	5	4	4	—	—
4552	S. Paul	64	21	7	2	4	15	15	4	10	16	5	6
303	S. Peter-at-Hungate ..	8	3	—	—	—	1	4	—	—	1	—	1
1904	S. Peter Mancroft	24	2	1	2	1	8	10	2	1	6	9	3
2767	S. Peter-per-Mountergate	32	3	2	2	—	7	18	3	1	7	7	1
695	S. Peter Southgate ..	3	1	—	—	—	1	1	—	—	—	—	1
1364	S. Saviour	15	3	2	—	—	1	9	1	1	2	1	1
290	S. Simon and S. Jude ..	3	—	3	—	—	—	—	—	—	1	—	1
3584	St. Stephen (with N. & N. Hospital)	103	13	7	11	8	42	22	7	9	12	18	12
692	S. Swithin	6	3	—	2	—	—	1	—	1	2	—	—
1848	Eaton	24	7	2	—	1	6	8	4	4	3	4	3
244	Earlham	4	1	1	—	—	2	—	1	—	1	—	2
30084	Heigham* (with Union) ..	513	115	37	8	21	110	222	69	64	84	71	11
722	Hellesdon (part of) ..	6	1	—	1	—	4	—	—	1	—	1	—
3365	Pockthorpe (with Cavalry Barracks)	36	16	9	1	—	4	6	5	1	7	—	—
5275	Thorpe Hamlet (with Brit. Barracks and Prison)..	87	18	6	3	6	31	23	9	11	10	4	8
290	Trowse,Carrow,and Bracon- dale	—	—	—	—	—	—	—	—	—	—	—	—
490	Cathedral Precincts (S.Mary- in-Marsh)	5	—	—	—	—	—	5	—	—	—	—	—
17	On Boats and Barges (Wensum)	2	—	—	—	—	—	—	—	—	—	—	—
8553	Lakonham	102	23	8	3	6	25	32	8	13	20	5	3

* Includes St. Bartholomew, St. Philip, Trinity, and St. Thomas.

The populations of the various parishes are calculated from the actual populations *recorded at the 1891 census*. It has been assumed that the rate of increase in the population of each parish has continued at the rate which prevailed in the preceding decade. It is more than probable, however, when the results of the new census are known, the populations of the central parishes will be found to have increased less in proportion (if they have not actually declined) than those of the parishes more remote from the centre of the City. The rates for 1900 therefore are but approximate ones, albeit, the best we can arrive at under existing circumstances; and give, if my forecast be a right interpretation of the facts, *the central parishes more favourable rates* than they actually merit.

Comparing these "Parish" death-rates with one another and with the corresponding mortality rates for the City, as a whole, we see that St. James' *again easily heads the list* with a *gross death-rate from all causes* of 49·9 per thousand of its population at all ages. St. Helen (due to deaths of inmates of the Great Hospital) is second with a death-rate of 42·9 per 1000, and St. Peter-at-Hungate follows with one of 23·2 per 1000. At the other end of the scale are St. Gregory with a gross death-rate of 3·0 per 1000, St. Peter Southgate with one of 3·6 per 1000, St. Michael-at-Plea 5·1 per 1000, and Trowse, Carrow, and Bracondale, with a cipher! The corresponding death-rate *for the whole City* being 17·6 per 1000.

Comparing the "Special" death-rates in the like manner we find the death-rate in children *under one year of age* reached 22·6 per 1000 of the population at all ages in St. James', 8·7 per 1000 in St. Peter-at-Hungate, and 7·4 per 1000 in St. Clements, St. Helen, and All Saints'; while St. John de Maddermarket, St. Martin-at-Palace, St. Michael-at-Plea, St. Gregory, Trowse, Carrow, Bracondale, and Cathedral Precincts, all come out with ciphers. The death-rate in children under one year of age for the *City as a whole* was 5·0 per 1000 of the population *at all ages*.

Between the *ages of one and five years* 9·2 per 1000 of the total population at all ages died in St. James', 8·7 per 1000 in St. Simon

and St. Jude, and 5·9 in St. Etheldred; while in All Saints', St. Helen, St. Gregory, St. Peter Southgate, St. Michael-at-Plea, St. Swithin, Trowse, Carrow and Bracondale, and St. Mary-in-the-Marsh no deaths occurred. The average rate for the *City, as a whole*, being 1·7 per 1000 of its total population.

At and above 65 years of age 39·0 per 1000 of its total population died in St. Helen's (including inmates in the Great Hospital); 8·5 per 1000 in St. Mary-in-the-Marsh; 11·6 per 1000 in St. Peter-at-Hungate; while in St. Andrew, St. Lawrence, St. Margaret, St. Michael-at-Plea, St. Simon and St. Jude, Earlham, Hellesdon, and Trowse, Carrow and Bracondale, there were no deaths. The death-rate at these ages for the *City, as a whole*, was 5·4 per 1000.

From *Zymotic Diseases* (including Influenza) there died in St. Helen's 15·6 per 1000 of its population at all ages, in St. James' 12·7 per 1000, in St. George Colegate 4·2 per 1000; whereas in St. Andrew, St. Gregory, St. John de Maddermarket, St. George Colegate, St. Peter-at-Hungate, St. Peter Southgate, St. Michael-at-Plea, St. Simon and St. Jude, St. Swithin, Trowse, Carrow, Bracondale, and St. Mary-in-the-Marsh no deaths occurred. The death-rate from Zymotic diseases (including Influenza) for the *City, as a whole*, was 3·2 per 1000.

Tuberculous Diseases (forms of the diseases commonly called "Consumption") swept off 6·2 per 1000 of its total population in St. James', 4·6 per 1000 in St. John de Maddermarket, and 3·3 per 1000 in St. Etheldred; whereas All Saints', St. Andrew, St. Gregory, St. Lawrence, St. Martin-at-Palace, St. Mary-at-Coslany, St. Michael-at-Plea, St. Peter Southgate, Earlham, St. Mary-in-the-Marsh, and Trowse, Carrow, and Bracondale lost no one from these diseases. The death-rate from Tuberculous diseases averaged for the *City, as a whole*, 2·0 per 1000 of the total population.

From *Respiratory Diseases* (excluding Phthisis) 4·8 per 1000 of its total population died in St. John's Timberhill; 4·2 per 1000

died in St. George Colegate, and 3·9 per 1000 in St. George Tombland and St. Giles; while in All Saints, St. Andrew, St. Lawrence, St. Peter Southgate, St. Mary in the Marsh, St. Michael-at-Plea, and Trowse, Carrow, and Bracondale there were no deaths recorded. The death-rate for *the City, as a whole*, being 2·6 per 1000 of the total population.

Heart Diseases carried off 3·9 per 1000 of the population in St. George Tombland and St. Helen, 3·6 per 1000 in St. Peter Mancroft and St. Stephen. *Per contra* heart diseases killed off no one in All Saints, St. Andrew, St. Edmund, St. Michael at Coslany, St. Gregory, St. Margaret, St. Michael-at-Plea, St. Michael-at-Thorn, St. Peter-at-Hungate, St. Peter Southgate, St. Simon and St. Jude, Earlham, Trowse, Carrow, and Bracondale and St. Mary-in-the-Marsh. The death-rate for the *City, as a whole*, was 1·8 per 1000 of the population.

Last year then St. James' had the *highest general death-rate*, the *highest Zymotic death-rate*, the *highest death-rate* between 1 and 5, the *highest death-rate* from tuberculous disease, and the *heaviest infant mortality*. St. George Tombland and St. Helen lost most people (proportionately) from *Heart diseases*; St. John Timberhill lost most people (proportionately) from the *Respiratory diseases*, excluding Phthisis.

I have, in the foregoing paragraphs, selected only a few "Parish" death-rates; the individual reader being left to institute much more elaborate comparisons. If the said reader wish to gauge the relative healthiness of any special parish, the important death-rates to be considered are (a) *the death-rate under one year of age*, (b) *the death-rate at and over 65 years of age*, (c) *the zymotic death-rate*, and (d) *that from tuberculous diseases*. He will do well to bear in mind the fact that a very low death-rate at and over 65 years of age does not necessarily point to a high standard of healthiness; on the contrary, it may mean that practically everybody is killed off in that particular parish before the age of 65 is reached!

As St. James' parish has for several years attained to an unenviable notoriety, I append its fatal disease record for 1900:—

Certified causes of death of the inhabitants of St. James', whose deaths were registered during the year.

St James'.

Apoplexy 2	Influenza 2
Asthenia (wasting) 4	Inanition 1
Bronchitis 7	Tuberculous Disease of
Broncho-Pneumonia ... 6	Bowels 3
Convulsions 10	Marasmus (Wasting) ... 5
Heart Diseases 2	Phthisis (Consumption) ... 7
Inflammation of Brain . 1	Premature Birth 6
Debility from Birth 1	Peritonitis) 1
Diarrhœa 7	Pneumonia 1
Enteritis (Inflammation of	Rupture 1
Intestines) 2	Senile Decay... .. 6
Epilepsy 1	Tuberculosis (Consumption) 3
Hydrocephalus (Water on	Whooping Cough 3
the brain) 2	

Infant Mortality in the City.

The certified causes of death in children dying under one year of age were:—

Abscess 2	Broncho-Pneumonia ... 25
Abdominal Tuberculosis ... 3	Cardiac Syncope... .. 4
Aphthæ 1	Congenital Syphilis .. 8
Asthenia 25	Convulsions 71
Acute Nephritis 1	Cyanosis... .. 2
Atrophy... .. 2	Debility from Birth ... 36
Bronchitis 36	Diarrhœa 112

Diphtheria	...	...	1	Measles	...	...	1
Enteritis...	...	...	4	Meningitis	...	...	1
Enteric Catarrh	...	...	1	Mesenteric Disease	...	...	2
Epilepsy...	...	...	1	Measles	...	...	1
Gangrene...	...	...	1	Pneumonia	..	...	4
Gastro Intestinal Catarrh	...	...	1	Premature Birth	...	..	70
Hypertrophy of Liver	...	...	1	Paralysis	...	...	1
Hydrocephalus	...	...	2	Phimosis	...	...	1
Immaturity	...	...	1	Rickets	...	...	1
Intussusception	..	...	1	Stomatitis	...	...	2
Infantile Jaundice...	...	...	1	Tuberculous Meningitis	...	...	3
Inward Fits	...	..	1	Tuberculosis	...	...	10
Imperfect Development	...	...	1	Tuberculous Enteritis	...	...	1
Laryngismus	...	...	1	Tonsillitis	...	...	1
Malnutrition	...	...	3	Whooping Cough...	...	...	14
Marasmus	...	...	64	Want of Vitality	...	...	1

Nineteen of the deaths were uncertified, *i.e.*, the certificate of death was not signed by a medical practitioner.

“Premature Birth” was given as the cause of death in the majority of these cases. I have again to point out how discreditable it is to the State to lose a single subject without being furnished with a properly attested medical certificate of the cause of death. The law now allows a Registrar, almost always a layman, to accept a certificate from an unqualified person, provided that he, the Registrar, is persuaded that no deception is being practised. The proper course is, without doubt, to hold an inquiry in every such case, and, where needful, a post-mortem examination. These steps will probably only be taken when the Registration of the causes of Death is made a department of the Medical Officer of Health’s Office.

It does not require any technical knowledge on the part of the reader to see that some of the certified causes of death, quoted on the preceding page, remain as vague as in previous years. "Marasmus," for instance, which is not, properly speaking, a disease (it is a symptom of disease and is a term used to signify wasting) is made accountable for no less than 64 of the deaths! It would be more satisfactory if to "Marasmus" the certifier added "cause unknown," when he is uncertain about it. "Want of Vitality" and "Inward Fits" are singularly uninforming phrases. Until the information afforded becomes more precise, these returns will remain of but small value.

It still remains a truism that so long as the State demands from the doctors, for the public use and good, certificates of the causes of death, and awards no payment for them, it cannot expect the said doctors, men, after all, merely human, to give careful attention to the thankless task. Some few doctors, of their own accord, take great pains to furnish clear, reliable, and therefore to the demographical statistician most valuable information respecting the true antecedents to death; it is the business of the State, by awarding a fee for the service rendered, to entitle the M. O. H. to claim in all cases the fullest possible information.

An important point to be noticed is that while the average infant mortality rate for the 33 great towns (as compared with 1899) *decreased* 9·75 per 1000 births, that of Norwich *decreased* only 0·75 per 1000 births; not a gratifying result, and one, we must hope, that we shall not find yet further emphasised in the future. No deaths are certified as being due to "improper dieting;" though there is little doubt that a large number of those classified under the ambiguous term "Marasmus" are due to this cause; a cause which originates in, and flourishes by reason of, the ignorance of the hygiene of infant life so lamentably prevalent among otherwise affectionate mothers. Unrecognised Tuberculous Disease, in my private judgment, accounts for others of these deaths so desipiently ascribed to "Marasmus," as it probably does

for some of the deaths attributed to "Convulsions," under which heading it will be seen no less than 71 deaths were registered; Bronchitis and Broncho-Pneumonia swept off 61, Diarrhœa 112, and Whooping Cough 14. "Premature Birth" and "Debility from Birth" between them account for no less than 106. The other features do not call for special comment, save that there is a slight fall in the number of deaths attributed to Hereditary Syphilis, and that Atrophy (2) and Asthenia (25) probably signify improper feeding.

I again caused enquiries to be made concerning *the number of children dying under one year of age who were insured*, and found that 44.2 of the total number were insured; a decrease of nearly 12 per cent., as compared with the figure reached in 1899, viz., 56 per cent.

FEVER HOSPITAL.

During the year 77 patients with Scarlet Fever, 27 with Diphtheria, and one with Erysipelas were removed to and treated in the Fever Hospital.

Of the 105 cases removed to the Hospital, 49 were males and 56 females. In 1899 these proportions were reversed.

With Scarlet Fever 23 of the patients were under 5 years of age.

"	"	24	"	"	between 5 and 10 years of age.
---	---	----	---	---	-----------------------------------

"	"	16	"	"	between 10 and 15 years of age.
---	---	----	---	---	------------------------------------

"	"	13	"	"	between 15 and 25 years of age.
---	---	----	---	---	------------------------------------

"	"	1	"	"	over 25 years of age.
---	---	---	---	---	-----------------------

With Diphtheria 5 of the patients were under 5 years of age.

"	7	"	"	between 5 and 10 years of age.
---	---	---	---	-----------------------------------

With Diphtheria 4 of the patients were between 10 and 15 years of age.

„ 6 „ „ between 15 and 25 years of age.

„ 5 „ „ over 25 years of age.

It will be noticed that the greater number of the patients (79) were under 15 years of age, the school-going period. The Erysipelas case (a boy aged 9) was admitted because at the time a small ward happened to be empty, and his home was ill-ventilated, crowded, and not cleanly.

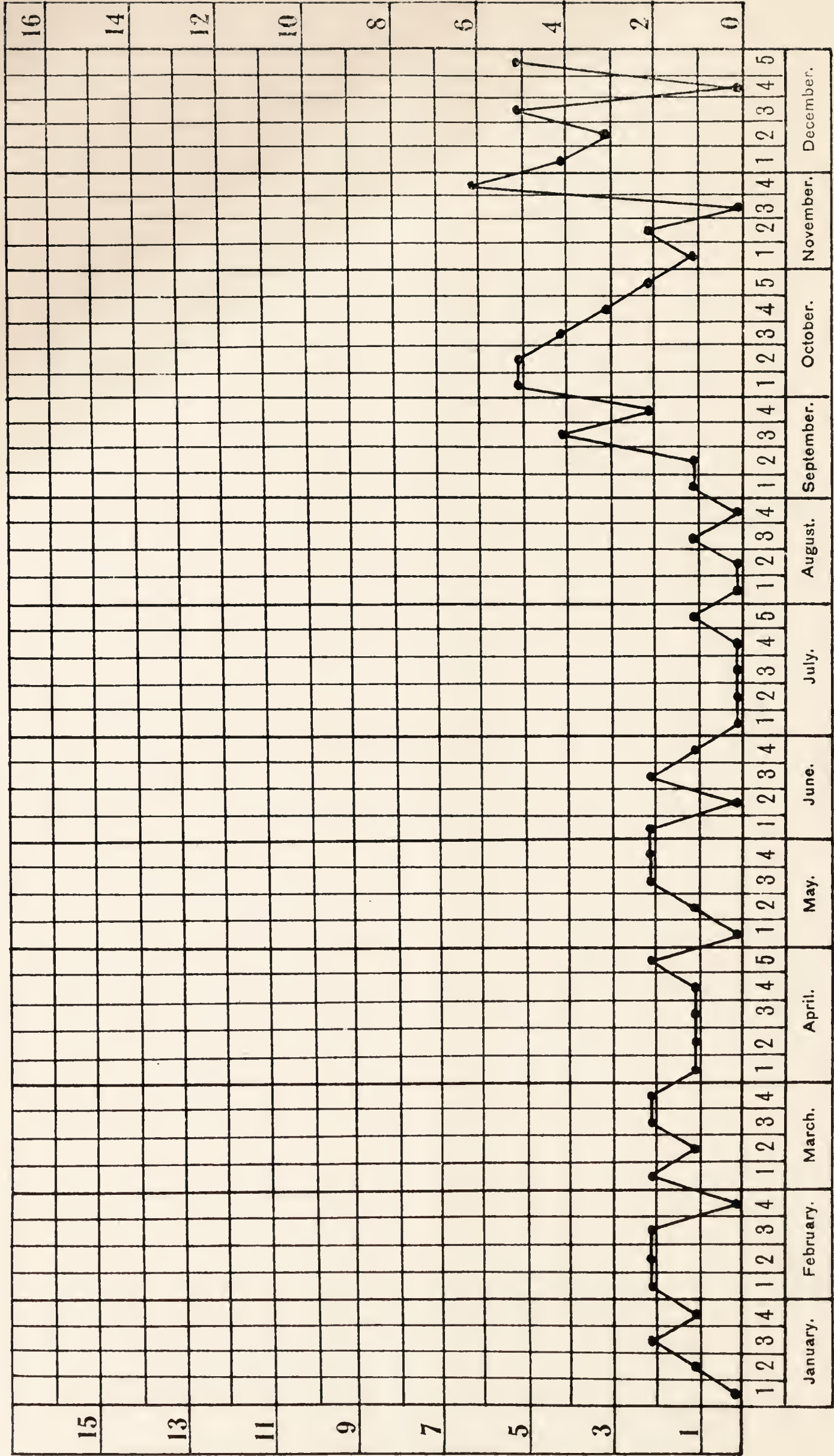
There were only three deaths in the Hospital; one patient died from Tuberculous disease of the brain, and the remainder from Diphtheria. Three patients developed post-scarlatinal Diphtheria, and were successfully treated with Schering's Anti-toxin. We had little Scarlatinal Rheumatism, but rather more glandular trouble than usual; and a lesser amount of the relatively intractible inflammatory affection of the nostrils, which is frequently associated with Scarlet Fever. There were fewer cases of suppurating ears and in no case did mastoid trouble necessitate operative proceedings. On the whole, complications of all kinds were relatively scarce. One of the patients certified to have Scarlet Fever brought in German Measles as well, and one of Typhoid with a rash. These are the sort of cases that, were suitable accommodation at our disposal, I should like to place in "Observation Wards." The patients made satisfactory recoveries.

There were two "return" cases during the year—a result which bears testimony to the vigilance exercised in discharging patients—particularly when the fact that we have *no properly constructed discharging rooms fitted up*, and have to make use of one of the ordinary wards in the central pavilion for the purpose, is remembered. Our experience in the treatment of Diphtheria was favourable, and with the fitting up of a specially-arranged ward in our new buildings, we shall in the future be able to treat this disease under improved conditions.

With the opening of the new buildings we shall, besides treating Enteric Fever, be able to treat Diphtheria under more favourable conditions, and also Scarlet Fever, than has been the case heretofore. Our great trouble in the past has been to keep the wards sufficiently warm, and at the same time adequately ventilated. The introduction of steam pipes into all the wards, new as well as old, will, I hope, get rid of this difficulty in the future.

1900.

SCARLET FEVER.



The Hospital Sub-Committee continues the policy adopted in 1893, and finds its sufficient justification in the rapid and continuous growth in popular favour of the Institution. In 1893 barely 25 per cent. of the fever cases were sent to the Hospital, in 1894 this proportion increased to 60 per cent., in 1895 the numbers rose to 75 per cent., and in the first half of 1896 to 80 per cent. of the total number of cases. During the past four years the percentage rate has been determined by the number we could accommodate.

The Wards were as usual kept bright and cheerful of aspect with flowers and plants throughout the year; presents from the friends and relatives of the patients, many of them quite poor people. The "Toy Fund," too, has been kept in tolerably sound condition, chiefly by the donations of patients and their friends. The grounds about the Hospital continue to improve in appearance, and the garden is sufficiently fertile to keep the whole establishment very fairly supplied with vegetables during part of the year. Some 4,000 articles were passed through the steam disinfectors.

NOTIFIED INFECTIOUS DISEASES.

Scarlet Fever.—88 notifications of Scarlet Fever were sent to me during the year, less than one-fourth of the number notified in the preceding year. Of these 88 notifications, 77 were primary, and 6 secondary infections, the remaining 5 occurred in public institutions. The Chart gives a graphic representation of the prevalence, week by week, of the disease, and *should be attentively studied*. I do not regard the occurrence of Scarlet Fever in or under the proportion of one case to every ten thousand of the population a week, or, roughly, 11 cases a week, as constituting an "epidemic" of the disease; to deal properly with this amount our actual Fever Hospital *accommodation is inadequate*.

Of the cases notified to me 55·0 per cent. occurred in females and 45·0 per cent. in males, a result curiously unlike that of the preceding year; 20·0 per cent. of the patients were between 1 and 5 years of age; 30·0 per cent. between 5 and 10 years of age; 22·0 per cent. between 10 and 15 years of age; 20·0 per cent. between 15 and 25 years of age; and none were over 25 years of age; an unusually high proportion. It will be noticed that 80·0 per cent. of the cases occurred in patients under 15 years of age—the school-going period.

From enquiries specially conducted I found that of the infected dwellings 4·0 per cent. possessed only *one sleeping room*, the average number of the occupants being 3 persons; 31·0 per cent. possessed *two sleeping rooms*, the average number of the occupants being 2·5 persons per room; 38·0 per cent. possessed *three bedrooms*, the average number of the occupants being 1·75 persons per room; and 27·0 per cent. possessed *four or more bedrooms*, the average number of occupants being 1·5 persons per room.

As regards the disposal of excrement 32·0 per cent. of the infected dwellings used "bins," 28·0 per cent. "pail" closets, and 40·0 per cent. water-closets. Last year these percentages averaged 42·0, 40·0, and 18 per cent. respectively.

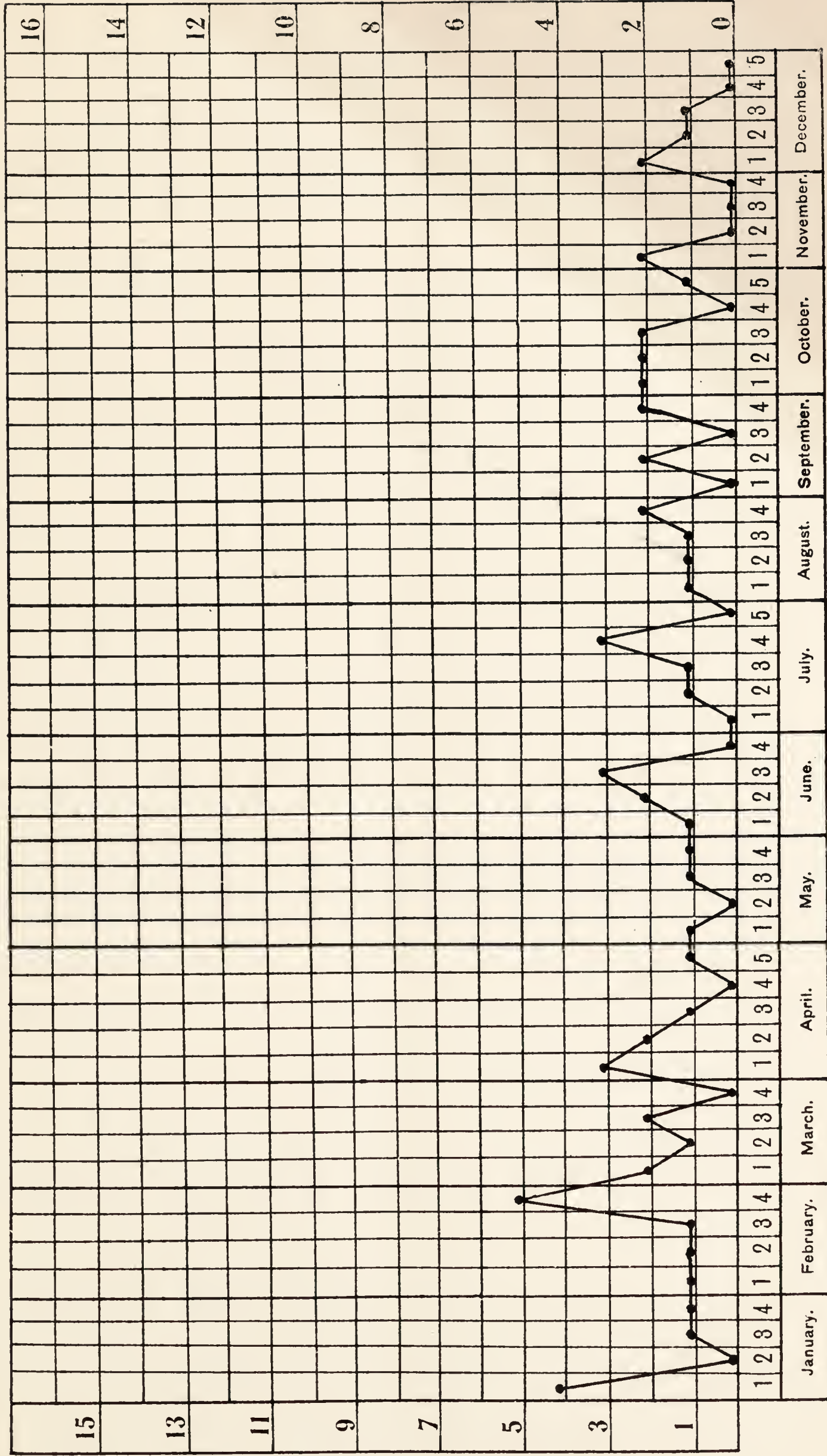
I was not able to trace Scarlet Fever to any special milk supply, and am disposed to think that a great majority of the cases owed their infection to personal contact; as to the origin of this disease we are in greater doubt than is the case with other zymotic ailments, and so long as this uncertainty continues our operations for preventing those conditions from rising which favour its development will be *pari-passu* imperfect, and our practical work confined rather to dealing with effects than causes. I am inclined to think that common use of an infected closet is a method by which this disease is propagated, and that *all the excretions of an affected person are infectious*.

Diphtheria.—There was a marked decrease in the amount of Diphtheria notified as compared with 1899, the actual number of cases notified being 65. The number of notifications was 123 in 1899, 53 in 1898, 61 in 1897, 94 in 1896, in 1895 it was 77, in 1894 it was 120, and in 1893 it was 134; so that we have had a better record than in any year except 1898 and 1897, since I have been in the city. There were only 12 deaths recorded from this disease during the year, a remarkably low proportion. Eight of the fatal cases occurred in persons under 5 years of age. The special death-rate was considerably lower than in 1899, which was then 1 in 3, being 1 to $5\frac{1}{2}$ persons attacked.

The 65 cases of Diphtheria notified to me occurred in 57 dwellings—there being 6 *instances of secondary infection*, or 1 to every 10 primary cases. Thirteen cases occurred in Public Institutions. Of the persons attacked 52·6 per cent. were females and 47·4 per cent. males. A reversal of the 1899 proportions.

DIPHTHERIA.

1900.



29·8 per cent. of the patients were under 5 years of age, 31·6 per cent. between 5 and 10 years, 8·8 per cent. between 10 and 15 years, 17·5 per cent. between 15 and 25 years, 12·3 per cent. over 25 years of age.

Systematic enquiries into the home surroundings of the patients entitles me to state that 8·5 per cent. of the infected dwellings possessed *only one sleeping room*, the number of the occupants averaging 3·5; 17·5 per cent. of the houses possessed *two sleeping rooms*, the average number of the occupants (of each room) being 2·5; 56·1 per cent. of the houses had *three bedrooms*, the average number of occupants being 2·0; and 19·2 per cent. of the dwellings possessed *four or more bedrooms*, with an average population of 1·5 persons per bedroom. 44·0 per cent. of the affected households made use of “bins,” 26·5 per cent. used *pail-closets*, and 26·5 per cent. *water-closets*. In 21·0 per cent. of the houses there was evidence of persistent *dampness*, commonly of the walls or flooring, and due to the *absence of a “damp course”* in the former, and of a layer of *concrete* below the latter. On account of the importance of causes of persistent dampness in or about a dwelling, I caused special enquiries to be made concerning the character of the paving, etc., of the yards adjacent to the infected dwellings, and found that 37·5 per cent. had yards covered with some *material impervious to fluids*; that 8·8 per cent. had yards partly paved, 29·0 per cent. cobbled yards, and 24·5 per cent. yards *without any paving at all*. In other words 63·0 per cent. of the houses *adjoined yards offering greater or lesser facilities for the soakage of fluid into the soil about them*. 22·5 per cent. of the houses possessed no sinks, which means that *all household “slops,” etc., and other waste fluids would be pitched into and about the gutter in the yard*.

The Chart exhibits the variation in the prevalence of Diphtheria week by week throughout the year. I retain my belief that any condition of the atmosphere or of the surroundings, which tends to produce a congested condition of the tissues lining the throat—such as damp, foggy weather, particularly when associated with low barometric pressure, which leads to engorgement and relative congestion of the superficial vessels; or any irritating influence such as the noxious effluvia constantly given off by the contents of “bins,” “pail-closets,” collections of refuse, etc.—distinctly favours the development of Diphtheria.

Enteric (Typhoid) Fever.—163 cases of Enteric Fever were notified to me during the year, 21 of them being secondary infections. As the relative prevalence of this disease is a commonly

accepted criterion of the sanitary condition of a district, its associations and surroundings become of special interest; and the importance of the subject justifies a more detailed account than is requisite in dealing with other flth diseases; the more particularly as Enteric Fever is rather *endemic* than epidemic in its character with us—that is to say it has been prevalent for so many years that it must be looked upon as having rooted itself among us.

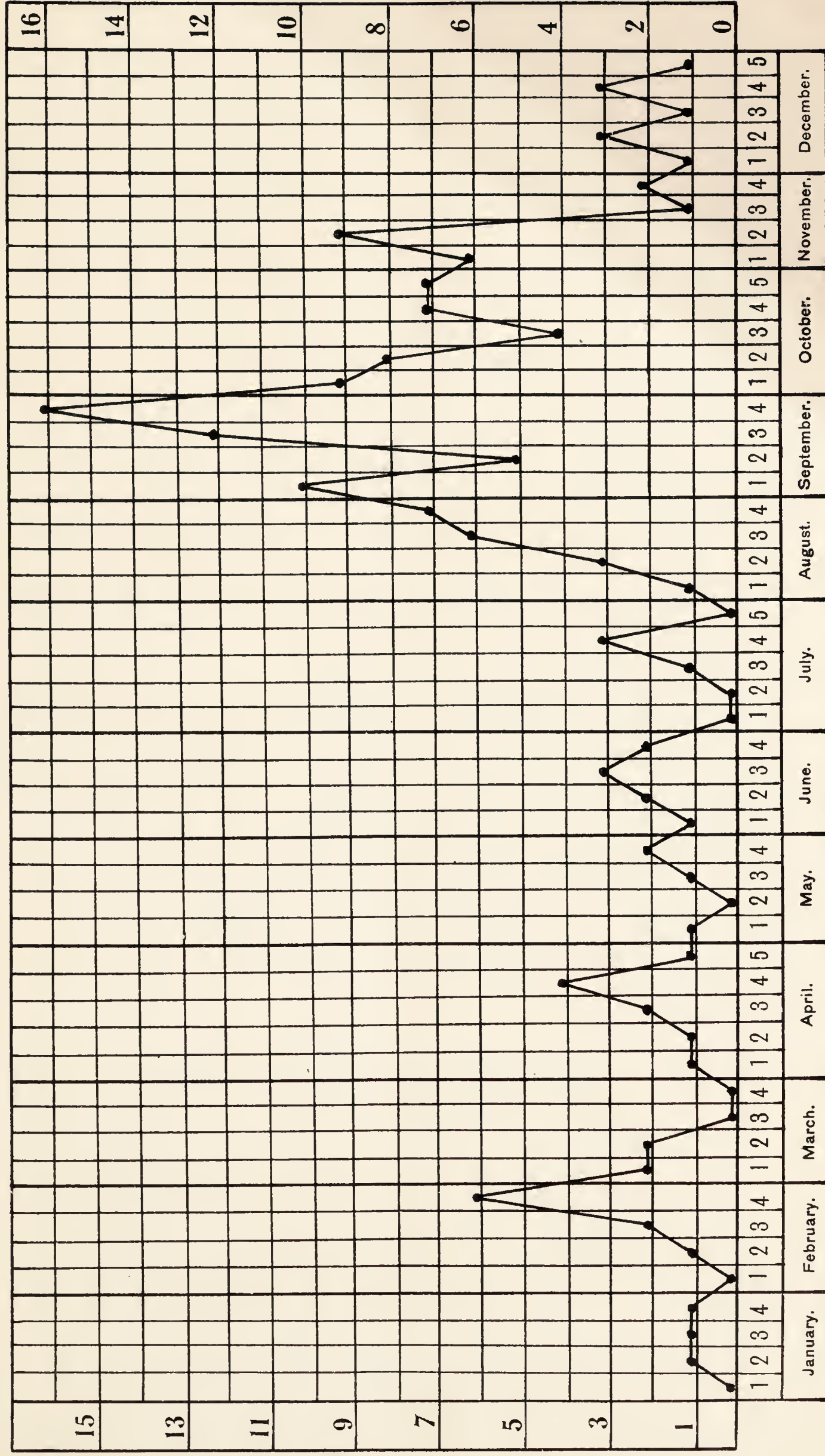
The following table gives the notifications of Enteric Fever in each year from 1880 to 1900 inclusive, and the mortality from the disease.

1880	{ notifications of Enteric F. in }	1880	with	37	{ deaths representing a mortality rate of }	20·5 %
50	„	1881	„	15	„	30·0 „
47	„	1882	„	8	„	17·4 „
34	„	1883	„	11	„	32·3 „
121	„	1884	„	30	„	24·8 „
584	„	1885	„	92	„	15·6 „
262	„	1886	„	39	„	14·5 „
136	„	1887	„	20	„	14·7 „
171	„	1888	„	19	„	11·1 „
166	„	1889	„	22	„	13·2 „
176	„	1890	„	31	„	17·6 „
163	„	1891	„	21	„	12·8 „
106	„	1892	„	19	„	17·9 „
314	„	1893	„	36	„	11·4 „
150	„	1894	„	22	„	14·6 „
226	„	1895	„	24	„	10·6 „
196	„	1896	„	20	„	10·2 „
234	„	1897	„	33	„	14·0 „
259	„	1898	„	48	„	18·5 „
144	„	1899	„	20	„	14·0 „
163	„	1900	„	12	„	7·4 „

It will be noticed that the death-rate in 1880 from this disease averaged 20·5 per cent. of the cases notified, or roughly 1 case in every 5, and that last year the death-rate was 1 case in every 13½. As I mentioned in my previous report, it does not necessarily follow that these figures represent the true state of the facts; that there has been on the whole a diminution in the case mortality cannot be doubted—but it must be remembered that most probably a number of the milder cases of the disease were not recognised and notified in 1880. Increasing skill in diagnosing the disease in its

ENTERIC FEVER.

1900.



lighter forms has, in my judgment, led to a more accurate correspondence between the number of notifications sent in and the actual amount of the disease; although I still think that a number of cases of Enteric Fever, of what is known as the "Ambulatory" type, escape notification, and never receive medical treatment. So that here, as elsewhere, the notifications furnish a reliable guide to the relative prevalence of the disease, but must not be regarded as accurately representing the full amount. "By "Ambulatory" Typhoid is meant so mild an attack that the patient keeps walking about, pursuing his or her ordinary vocation in life, never ill enough to need a doctor, having some feeling of malaise and what is thought to be some transient diarrhoea. A lessening of the mortality from this disease could be confidently looked for if we were able, as I hope ere long we may be, to set aside a pavilion at the Isolation Hospital for the treatment of the disease when it occur in cramped, crowded dwellings. It is in such cases as these that the disease becomes most fatal, not necessarily on account of the severity of the seizure, but almost necessarily on account of the unfavourable nature of the surroundings. In two houses in this city, in 1896-7, adjoining each other, out of sixteen inmates, fifteen, one after another, fell victims to the disease; and three out of these fifteen persons died from it. It is my belief that if I could have removed the first case the other cases would not have occurred.

Differentiating some characteristics of the 163 cases notified in 1900, and comparing them with those notified in 1899, 1898, and 1897, I find as regards

- (a) Sex. That 50.0 per cent. of the cases occurred in males and 50.0 per cent. in females; the average per centages of the preceding three years were 49.8 males, and 50.4 per cent. females. Why these very slight changes have occurred I do not know; the females are commonly more home-keeping in their habits than the males; on the other hand the latter expose themselves to more extended means of infection.

- (b) Age.

				Average percentage of the preceding 3 years.
7.7	{	per cent. of the patients were under	}	10.1
		5 years of age		
23.8	,	,	between 5 and 10	19.7
12.5	,	,	10 and 15	16.6
15.4	,	,	15 and 20	15.4
8.5	,	,	20 and 25	10.0
17.5	,	,	25 and 35	13.9
6.6	,	,	35 and 45	9.8
8.0	,	,	over 45	7.5

It will be noticed that 44·0 per cent. of the cases occurred in children under 15 years of age—what may be called juvenile typhoid, being a marked characteristic of the Enteric Fever which prevails in Norwich. The average number of such cases in the preceding three years was 40·3 per cent. of the total number. Fewer cases in persons over 45 years of age were notified.

(c) Crowding.

					Average number of occupants.
3·5	{	per cent. of the affected dwellings had	}		
				only 1 bedroom	4·0 persons
33·0		„	„	2 „	2·5 „
54·0		„	„	3 „	1·8 „
9·5		„	„	4 or more	1·4 „

The average corresponding percentages of the preceding three years were 1 bedroom, 4·0 per cent.; 2 bedrooms, 32·9 per cent.; 3 bedrooms, 41·5 per cent.; 4 or more bedrooms, 20·0 per cent.; the relative crowding being 3·5, 2·7, 1·9, and 1·3 persons *per room*. So that the disease this year invaded about the same number of the worst and fewer of the best houses than in the preceding three years. In estimating the influence of “man-crowding,” I have only concerned myself about the number of sleeping-rooms, the rooms in which crowding becomes important. The census returns are only helpful here in respect of tenements consisting of one room, which room must, of necessity, be used for bed and living room; and when it is remembered how large a proportion of these are occupied by one old man or woman living alone, the incidence of the disease in one bedroomed houses is probably much heavier than the figures represent.

(d) Water supply.

92·0 per cent. of the affected dwellings were supplied with the Company's water.

8·0 per cent. of the affected dwellings were supplied from wells.

Of the preceding three years the (averaged) corresponding proportions were 82·0 and 18·0 per cent.

The proportions in which houses are supplied with “pipe,” or with well water are quietly but *continuously* altering; each year

sees an increase in the number of houses supplied by the Company, and a decrease in the number of those drawing water from wells. I believe that at the present time over 90·0 per cent. of the houses are supplied by the Company with water. 42 wells were closed during the year, the water drawn from them being shown, by chemical analysis alone, to be unfit for drinking purposes. We have, thanks to a resolution passed by the Health Committee, been enabled to submit the Company's water to the much more rigid test of bacteriological investigation, in addition to chemical analysis, with satisfactory results. The persistence of Typhoid among us makes it necessary for us to take every possible precaution with regard to water. The Water Company expends great care upon the filtration and storage of the water it supplies to citizens, and short of the demonstration by bacteriological experts of the specific bacillus of Enteric Fever being distributed by the Company with the water it abstracts from the Wensum, I see no sufficient reason for dissenting from the opinion expressed by the Official Analysts that it is "a perfectly safe water for dietetic use."

(c) Milk supply.

1900.				Corresponding (averaged) proportions in the pre- ceding three years.
2·4 per cent. of the patients drank no milk	...	..	...	4·0
11·6 per cent. of the patients drank it in the raw uncooked condition	...		...	18·7
86·0 per cent. of the patients drank it only when first boiled or cooked in puddings or in hot tea, &c.	...		...	77·0
0·0 per cent. of the patients used con- densed milk	...		...	0·3

Milk, I think, had, as in preceding years, little to do with propagating Enteric Fever among us: its influence anyway must have been limited, for practically it could only be a source of infection in 12·0 per cent. of the cases, among the drinkers of the *uncooked* article. At the same time I am bound to say that but for the fairly general cooking of the milk consumed among us we are practically at the mercy of the surrounding districts; so large a portion of our supply comes from outside the city; and unfortunately the want of a Medical Officer of Health for the County of Norfolk

is felt in more than the absence of concerted action between the City and the County Sanitary Authorities in the matter of milk supply.

(f) Shell-fish. So far as I could learn 92·0 per cent. of the cases *ate no shell-fish, either in the cooked or uncooked conditions, within three weeks of the outset of their ailment.* (In the preceding three years the corresponding (averaged) percentage was 82.) So this possible source of infection could not affect more than 8 per cent. of the cases last year, even supposing that the whole of these ate their shell-fish in an *uncooked condition.*

(g) Disposal of excrement.

57·0 per cent. of the affected dwellings used "bins"					
31·75	"	"	"	"	pail closets
11·25	"	"	"	"	water closets

(Of the water closets the Inspectors reported 2·8 per cent. as "defective.") In the preceding three years the corresponding (averaged) percentages were 55·0 per cent. "bins"; 38·0 pail closets; 11·3 water closets. It is much to be regretted that the power of the Sanitary Authority to enforce the provision of water closets is so seriously restricted, as under the existing laws it unfortunately is. Unless the Health Committee decide in each particular instance, that there is insufficient accommodation, it cannot enforce a water closet (*which it always recommends*), except in the now rare circumstance of the excrement having to be removed *through* a dwelling, in which case water closets are always insisted upon. Then many of the new houses *comply with the Building Bye-Laws*, under which the Executive Committee now sanctions the erection of new dwellings *by providing a pail closet.* So that year by year the total number of these latter closets increases. Last year 20·0 per cent. of the *new dwellings* occupied were provided with pail closets.

The number of houses supplied with water closets* now amounts to nearly one-third of the whole; considerably more than

* On the 31st of December, 1900, the Waterworks Company were supplying water to 7,720 water closets—in many instances more than one being attached to a single dwelling.

one fourth have pail closets, and the remainder "bins." Regarding the pail closets as small, movable "bins" (which indeed they are), it will be seen that 89.0 *per cent. of the cases occurred in dwellings where the excrement of the occupants was retained about them.* I regard this demoralising practice of preserving excrement in the neighbourhood of the dwelling as constituting a very efficient agency in predisposing the dwellers to Typhoid; and am pretty sure that the systematic adoption of efficient water closets throughout the City would very materially lower the amount of Typhoid among us; lower it in fact (together with really good drainage) as nothing else is likely to.

(h) Household drainage.

At 70.0 per cent. of the affected houses the inspectors reported the drainage as "good." In the preceding three years the corresponding (averaged) per centage was 45.0 per cent.

Which means that, in the others, some defect in the drainage such as no sink (which means that all slop and other waste water would be pitched about the yard), sink waste-pipe not disconnected, or loose and defective "traps," &c., existed.

(i) Character of yard.

	Average of the preceding three years.
10.0 per cent. of the affected dwellings had no yard	0.6
31.5 per cent. of the dwellings had paved yards	25.8
24.6 per cent. of the dwellings had <i>unpaved</i> yards	35.5
28.6 per cent. of the dwellings had <i>partly</i> <i>paved</i> yards	14.0
15.3 per cent. of the dwellings had <i>cobbled</i> yards	22.5

In other words, 68.5 per cent. of the dwellings had yards more or less liable to have *the subsoil soddened with moisture and impurities.* I have repeatedly drawn attention to the importance of having the soil which adjoins a dwelling covered with some material impervious to fluids, else it cannot be kept dry. A large number of the poorer dwellings in this City have no properly constructed "damp course" in the walls, and in addition have not had a thick layer of

concrete laid under the bottom floors ; in such cases moistening of the subsoil must lead to dampness in the dwelling, to say nothing of the deleterious ground air which will be forced upwards by the rising of the ground-water from time to time ; and always be more or less sucked into the dwelling, owing to its atmosphere being warmer.

- (j) Food Store. In 1.5 per cent. of the affected dwellings food was stored in a receptacle situated inside the living-room, but *having direct communication with the external air* ; in 9.1 per cent. food was stored *in a similarly ventilated* receptacle elsewhere ; 9.9 per cent. of the dwellings had *the household food stored in an unventilated receptacle (i.e., having no communication with the external air)* in some part of the house, other than the living-room ; and in as many as 79.5 per cent. of the dwellings, the food was stored *in some unventilated receptacle in the actual living-room*. In the preceding three years the food store was some unventilated receptacle *in the actual living-room* in (averaged) 75.5 per cent. of the affected dwellings.

It is worthy of notice that in 79.5 per cent. of the affected dwellings, the food was stored in the living-room, and therefore in *an atmosphere more or less stale and impure*. Without assuming a direct connection between such food and a disease like Typhoid, it will be obvious that articles of food such as milk, butter, bread, etc., kept in such surroundings might easily become contaminated with impurities.

- (k) Nearness to sewer gratings and gullies :

	Average of three preceding years.		
12.6 per cent. of the affected dwellings were within 20 ft.	13.0
16.8 per cent. of the affected dwellings were within 40 ft.	22.0

The remainder were over 40 feet. These measurements were taken because a stench from a grating or gulley has been so constantly charged by people near with occasioning Typhoid ; my own belief is *that pollution of the neighbouring air with sewer gas, lowers the resisting powers of the body*, and thus causes those exposed to so deleterious an influence to fall more easily a victim of disease. I am of opinion that the emanations from collections of excrement in "bins" and pail-closets, and from heaps of decaying refuse, act in the like manner as powerful predisposers to disease.

(l) Occupations of householders, etc.

121 dwellings were affected: 19 labourers, 8 shoemakers, 7 gardeners, 3 fishmongers, 3 publicans, 2 monthly nurses, 3 sawyers, 3 hawkers, 3 scavengers, 3 rivetters, 2 clerks, 2 bricklayers, 2 bakers, 2 brushmakers, 2 packers, 2 boxmakers, 2 carver and gilders, 2 butchers, 2 blacksmiths, 2 mustard-makers, 1 fowl dealer, 1 fruiterer, 1 coachsmith, 1 engine-driver, 1 commercial traveller, 1 machinist, 1 iron-moulder, 1 chimney sweep, 1 insurance agent, 1 hay-trusser, 1 laundress, 1 carpenter, 1 greengrocer, 1 grocer's assistant, 1 clicker, 1 compositor, 1 letter-brander, 1 hairdresser, 1 draper, 1 sweet-maker, 1 dressmaker, 1 painter, 1 fitter, 1 builder, 1 tailor, 1 draper's assistant, 1 jam-boiler, 1 soldier, 1 servant, 1 engineer, 1 stableman, 1 gasfitter, 1 upholsterer, 1 carter, 1 wherry-lad, 1 engine-cleaner, 1 ironmonger's assistant, 1 waterman, 1 rag merchant, 1 locomotive examiner, 1 coach-builder, 1 watchmaker, 1 drover, 1 mercantile clerk.

(m) Secondary cases.

In 21 dwellings more than one member of the household contracted the disease.

Taking all the facts brought to my notice in these detailed investigations during the past five years into consideration the following summary represents the conclusions I have at present arrived at.

- (1) That Enteric Fever (as shown by the number of notifications) has been prevalent in Norwich for the last 20 years.
- (2) That while there has been on the whole, a seasonal increase of the disease in the autumn months, the disease has persisted throughout the year.
- (3) That what may be described as the *endemicity of the disease in the City, appears to be associated with the methods of disposing of excrement followed*, and with defects in the sewerage and drainage.
- (4) That while specially polluted water and milk may be occasional causes, there is no sufficient evidence that they constitute the main persisting causes.

- (5) That bedroom crowding exerts a predisposing influence, probably by lowering the standard of healthiness in those subjected to such undesirable household conditions.
- (6) That emanations from sewer gratings, untrapped gullies, and more particularly collections of festering excrement exert a *predisposing influence in those exposed to them*.
- (7) That the existence of some thousands of fixed and movable "bins" is unquestionably a source of continuous pollution alike to the *soil* and the *air* in the neighbourhood of the dwellings, and affords *favourable conditions for fostering a filth-disease like Enteric Fever*; and that, in scavenging, portions of excrement are liable to fall on to and get trodden into imperfectly paved yards, alleyways, and streets.
- (8) That the high proportion of the chlorides and nitrates to be found in the soil of the City bears testimony to *organic pollution in the past*, and *furnishes a favouring nidus for promoting the existence of the specific micro-organism of Enteric Fever*.
- (9) That this disease can be most effectually combatted by the adoption of a system of water-carriage for the disposal of excrement, paving all the yards with material impervious to fluids: and providing hospital accommodation for the treatment of such cases as occur in small or crowded dwellings.

Puerperal Fever — Only two notifications of this dangerous child-bed fever were sent in during the year; these were fatal cases. Supposing the notifications to represent all the cases which occurred, the death-rate 100·0 per cent. was an abnormally high one. The average death-rate for the preceding three years having been 75·0 per cent. of the notified cases. Puerperal Fever being a preventible disease, we were entitled to look for a diminution in the mortality from it. I forbid the nurse or midwife in attendance to go to another confinement for a period of at least one month, and then only after a thorough cleansing and disinfection of her clothing and person, and as far as possible, dwelling. The medical practitioners in the City I have found anxious to adopt all reasonable precautions, the chief being a temporary abstention from obstetric practice. Rigorous antiseptic precautions in obstetric

practice furnish the best means of preventing the development of the disease, and as our midwives become both more intelligent and more scientifically trained, we may justifiably look for a steady lessening of puerperal fever; more particularly when parturient women themselves come to understand the vital importance of scrupulous cleanliness being observed by themselves, their attendants, and in all the surroundings.

Erysipelas.—Seven cases were notified to me. Three deaths were registered from it, being the same number of deaths which occurred from it in 1899 and less than that of the three preceding years. Erysipelas of a fatal type cannot be regarded as having been prevalent in the City.

Measles, I regret to say, is not notified to me, and I only learn of its prevalence through the deaths from it, and the weekly returns of the causes of absence of children from the Schools. The latter valuable information I only receive from the Elementary Schools under the immediate control of the School Board. I regret to say that the Voluntary Schools do not furnish me with it. Measles being a dangerous disease, particularly on account of its possible complications, and, on account of its infectivity, a source of administrative trouble to all concerned with the management of schools, I am still of opinion that the Urban Sanitary Authority would act wisely if it adopted my recommendations and agreed to pay for the notification of *first cases in separate dwellings*—for it is only in this way that we can secure early information of the development of fresh centres of infection, and warn the school authorities to exclude *all* the children coming from an infected dwelling. I believe, too, that such notification to the Sanitary Authority, with the visitation of the affected dwelling which follows, would in time, lead to a much-needed alteration in the attitude assumed by the mothers, in Norwich, towards this really dangerous, infectious disease, and the criminality of carelessness regarding it. Last year there were only eight deaths; three more than in 1899.

Whooping Cough proved fatal to 66 children last year. This is a result for 1900, which is not satisfactory without considering how highly infectious this disease is, and dangerous too. I gain information of its prevalence among children attending the Board Schools from the weekly returns, but as is the case with reference to Measles not from the other elementary schools.

Diarrhoeal Diseases carried off 144 persons, 141 of whom were *under 5 years of age*, the greater number succumbing (as is

customary) in the third quarter of the year. In 1899 there were 183 deaths from these diseases. I attribute the heightened prevalence of and mortality from this disease to *bad feeding, carelessness in the treatment and storage of milk*, and to the favouring temperature and weather which prevailed; and practically the other conditions which favour the development of these diseases—*soil and air pollution*. I made special enquiry into the character of the closet accommodation at 145 of the dwellings where fatal cases of Diarrhœa occurred with these results—63.0 per cent. used “Bins,” 25.0 per cent. Pail Closets, 12.0 per cent. Water Closets—in other words, 88 *per cent. of the fatal cases occurred in dwellings where excrement was suffered to remain on the premises*.

Influenza,—82 deaths were certified to be either directly or indirectly due to this disease; in 1899 the number of deaths ascribed to it was 32.

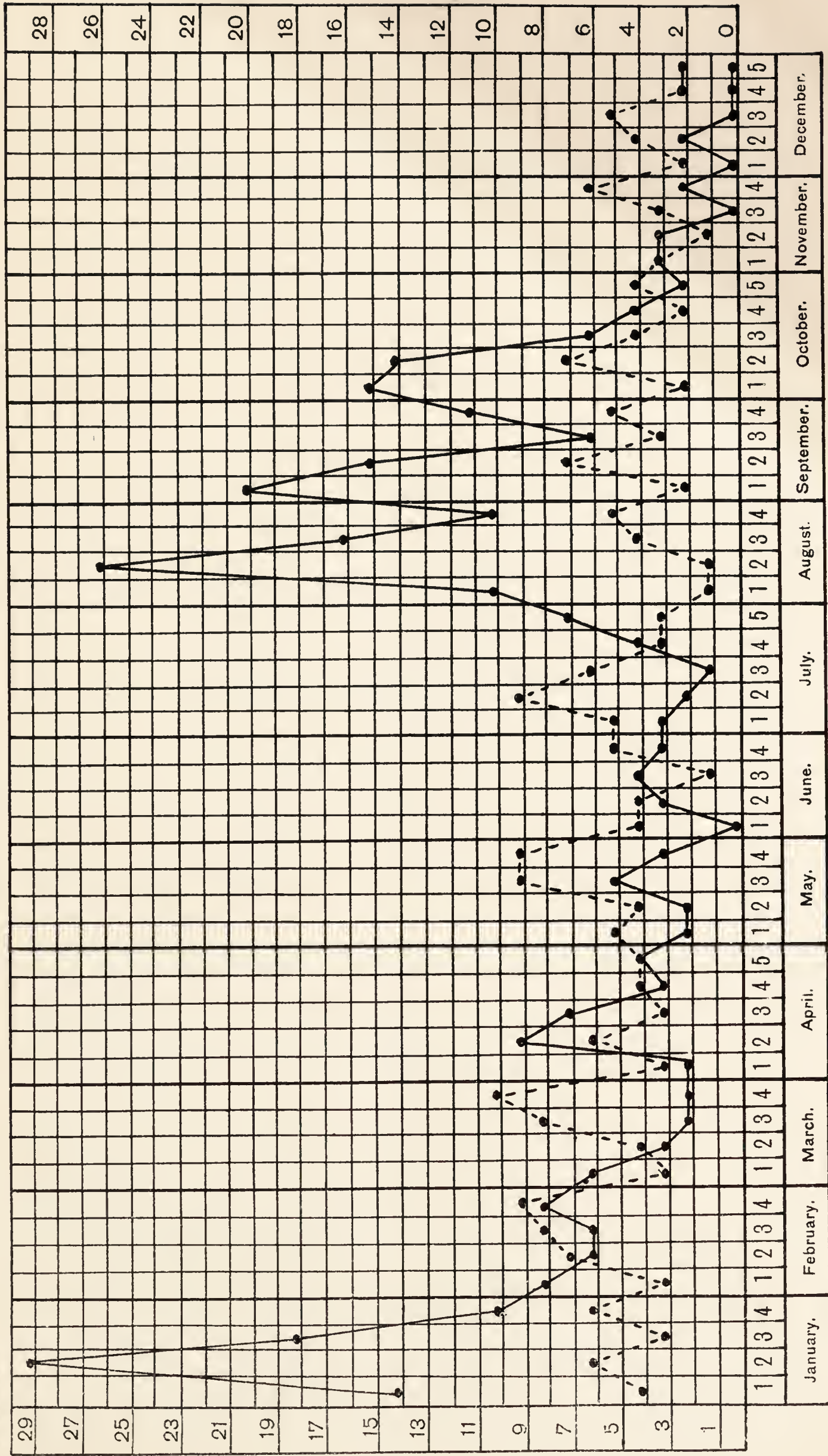
THE TUBERCULOUS DISEASES.

(Forms of the disease commonly called “Consumption.” 144 deaths were certified to be due to tuberculous disease of the Lungs (Phthisis) and 98 to other forms of tuberculous infection; making in all a total of 242 *deaths from the tuberculous diseases*. This is a little above the average for the preceding seven years; which average amounts to 231 deaths from the tuberculous diseases per annum. I am hopeful that at length the people of Norwich are beginning to realise the fact that the tuberculous are *distinctly infectious* diseases, and to treat them accordingly. Nothing but benefit to the healthiness of our community can result from the general apprehension of the fact that the tuberculous diseases are dangerous—particularly the phthisical type. I feel that I have done well in insisting, as for eight years I have done, upon the dangers to the community of these *catchable and largely preventible diseases*. The chart shows the weekly fluctuations in the tuberculous death-rate throughout the year; and it will be worth the readers while to compare this chart with the charts for the seven preceding years. The returns for the eight years confirm my belief, admitting of practically no qualification, that the *tubercle bacillus* (the micro-organism of whose pernicious activity

Deaths from ZYMOTIC DISEASES, BLACK —

" " TUBERCULOUS " BLACK DASHES • - - - -

1900.



these diseases furnish us with reliable information) is no stranger among us. It flourishes practically wherever people are crowded together, and may be said to be permanently entrenched in all old cities. This lethal bacillus which has cost, and is still costing us, as a nation, directly or indirectly, millions of money, and goes on reaping its untimely harvests of valuable lives year after year, is most at home in dark, ill-ventilated places, and is much favoured by overcrowding in any dwellings. *Sunlight and fresh air are fortunately destructive to it*; which fact helps to explain why sanitary experts claim that every dwelling shall have *good air space, and freedom for the admission of sunlight into and about it*.

In 1893 I first offered to gratuitously disinfect the rooms, which had been occupied by a tuberculous patient, after the removal by death, or otherwise, of the victim of the *tubercle bacillus*. During the following year, 1894, five rooms were so disinfected: in 1895 the number rose to 39, in 1896 to 56, 1897 to 81, in 1898 exactly 50 per cent., in 1899 60 per cent, last year no less than 96.0 per cent. of the total number of fatal cases, all of which disinfections were carried out after the death of a person from the phthisical form of the disease. I regard these figures as indicating a really remarkable growth of opinion on the part of the public, that it is *a wise step to have rooms, etc., disinfected after a death has occurred from tuberculous disease*; and can only hope that the practice will become general. I also hope that the members of the medical profession will recommend disinfection to the friends of their patients in all cases of death, or of removal. It is at any rate encouraging to find that within 5 years, the relatives of more than three-quarters of the fatal lung cases wished to have this precautionary measure adopted *for the protection of the other inmates of the dwelling*.

I again direct attention to the fact that the *tubercle bacillus* is constantly *coughed up* in large numbers *with the spittle* of consumptive people, and that the same bacillus is commonly present in the discharges from tuberculous glands, abscesses, etc.. Should hæmorrhage occur, the specific bacilli will be pretty certainly carried out with the blood. Hence the importance of either rigidly disinfected (boiling is a good method), or burning any rags, clothes, etc., soiled with the blood or expectoration. For if the extruded matter be left to dry, it will, in time, become fine dry dust; which dust may be kicked or brushed up into the air, and as it contains the potentially active bacilli, it may be the means of introducing these into the lungs of others; or the expectorator of the infective material, may, in this way, re-infect himself. The risk of infection is specially great when the epithelium (an exquisitely delicate

protective membrane) lining the respiratory passages becomes from any cause abraded (as for example, after an attack of Bronchitis, Whooping Cough, Measles, Influenza, etc.). It is not only a piece of enlightened self-interest on the part of a consumptive, to take care that all expectorated matter is rigidly disinfected, or what is better, promptly burnt ! but it is also his imperative duty to minimise the risk to his fellows by so doing. It is *what a consumptive coughs up* that is to be feared ; not his mere breath—one may sit for example, in the same room with him, if it be well-ventilated, and his habits are cleanly, without practical risk. Spitting about in public places and vehicles, becomes, when the spitter is a consumptive, in addition to being a disgusting habit, a dangerous one as well ; a habit that should be rigorously discouraged, alike in the interest of decent manners, and of the general health. A consumptive can always carry a damp rag with him, which rag he can afterwards easily burn.

Unfortunately, a very large number of people inherit a predisposition, that is a heightened liability to fall victims to tuberculous disease ; and many others favour the development of the disease in themselves, through lowering their general tone by living amid surroundings of a depressing character, such as *ill-lighted, dusty and badly-ventilated* shops, work-rooms, houses, and offices. A person enjoying fairly good health may, and probably does, take in tubercle bacilli, from time to time with his food and air ; but the resisting power of his tissues is commonly able to cope successfully with the invaders ; the person, however, whose health is below par, in particular, if the protective pulmonary epithelium be abraded by coughing, etc., and whose tissue-resistance is enfeebled, such an one all too frequently succumbs—and the onset is so insidious that the bacilli may get a firm hold before the mischief is noted. The great general preventatives of consumption are *good food, bodily exercise, sunlight, and fresh air* in generous abundance.

When a member of a household have fallen a victim to one or other of the tuberculous diseases, it is not necessary to treat him as a social leper. If precautions be taken to prevent *anything he coughs up* from ever drying, and if the rooms occupied be effectively ventilated he may share in the ordinary family life. He should, however, sleep in a bed by *himself*, and where practicable, *in a separate room* ; this room should be as large as possible, and the consumptive should early acquire the habit of *keeping the window always OPEN* supposing, as is commonly the case, there is no other means of admitting fresh air. Of course the proper way of securing adequate ventilation is to make arrangement *altogether unconnected with the window* ; perhaps the simplest, and certainly one of the best means of doing this, is to insert a grating *at the floor level* in

the external wall, delivering if possible *fresh air under the bed* ; (by means of simple valve, the incoming air can be directed upwards to the bottom of the bed), the atmosphere of the room will then always keep refreshing and healthsome whether the window be closed or not. If such fresh air grating be *not* provided (the expense of inserting one is trifling) then if the window frame reach low down, say to within eighteen inches of the floor, let it be kept open *at the bottom* ; if the lower ledge of the window be as it most stupidly usually is, about 3 or 4 feet from the floor, place an accurately-fitting piece of board under the lower sash, so as to leave a vertical aperture between the sashes of not less than three inches in depth. Failing all else, open the window *at the top*. In towns the air may be rendered more acceptable to the irritated lung tissues by causing it to pass through a screen of stretched flannel, which will effectually filter out from the air particles of dust, "blacks," &c. *Under no circumstances it is prudent to turn the room into a practically closed box.* Let the bed clothing be warm and light, *e.g., ventilated* eider down quilts. With good air, cold need never be feared. I do not believe that moisture is detrimental to a consumptive, but I do believe that the lowered barometric pressure which usually accompanies it is, by leading to the engorgement and relative congestion of the superficial vessels. The important point is to keep a consumptive *constantly irrigated with unbreathed air*. It is when the bacillus-riddled victim of tuberculous disease becomes too weak to attend to himself carefully that the great risk of infecting his bedding, etc., and room occurs, and hence the sensibleness of having these carefully disinfected, after pale Death have entered with equal foot, whether it be into the hovels of the lowly, or the halls of the great.

As is well-known by this time, tuberculous disease may be conveyed to the human by other animals, notably by cattle. Dairy cows in particular, if kept in over-crowded and badly ventilated sheds, fall ready victims to the tuberculous disease, and may, through their milk, convey it to milk-feeding people, particularly children. This danger may be guarded against by, *in all cases, boiling or otherwise thoroughly cooking milk* before consuming it. There is a lessened but still sensible risk in eating the flesh of tuberculous cattle, for the risk cannot be entirely banished by cooking, the interior portion of joints, etc., rarely reaching a temperature sufficiently high to kill the bacilli.

It should be the duty of specially appointed veterinary surgeons *to make periodical inspections of all cattle*—to order their destruction when desirable (fair compensation to be given in all cases where

the owner has taken reasonable care to give no encouragement to the disease) and to supervise the disinfecting of the stalls, sheds, &c., which have been occupied by the effected animals. But one fears that these simple precautions will only be adopted when the electors of the Realm of England have realised "that public health is public wealth," and make the promotion of national healthiness "the supreme law."

The following is a copy of the card of instructions issued by me to people known to be suffering from Tuberculous Disease:—

“PRECAUTIONS FOR CONSUMPTIVE PERSONS.

Consumption is a catchable disease. It is most commonly caught by inhaling infected spittle which has been allowed to become dry and float about the room as dust.

Do not spit except into special vessels, the contents of which are to be destroyed by burning before they become dry. If this simple precaution be taken, there is practically no danger of infection. The breath of consumptive persons is not directly infectious.

The following suggestions will be found useful, both to a sufferer and to his friends:—

1.—Spittle (indoors) should be received into small paper bags or pieces of paper which should be afterwards *burned*.

2.—Spittle out of doors should be received into a suitable bottle, which should be afterwards washed out with *boiling water*; or into a small paper handkerchief, which should be afterwards *burnt*.

3.—If ordinary handkerchiefs are ever used to spit into they should be *put into boiling water before they have time to become dry*; or into a solution of a disinfectant, as directed by the doctor.

4.—*Wet* cleansing of rooms, particularly of bedrooms occupied by sick persons, should be substituted for “dusting” and sweeping.

5.—*Sunlight*, good food, and *fresh air* are the best remedies for the disease. Every patient should, if possible, sleep in a bedroom by himself, and should sleep with his bedroom window *open*; a screen being arranged, if necessary, to prevent direct draught: stretched coarse flannel may be used to free in-coming town air from dust, smuts, etc. The patient need not fear going out of doors in any weather, if warmly clad.

N.B.—The patient *himself* is the *greatest gainer* by the above precautions, as his recovery is retarded and frequently prevented by renewed infection derived from his own expectoration.

6.—Persons in good health have no reason to unduly fear the infection of consumption. Over-fatigue, intemperance, bad air, dusty occupations and dirty ill-ventilated and badly (sun) lighted rooms favour it.”

ANNUAL REPORT
OF THE
PUBLIC ANALYST,

For the Year ending Dec. 31st, 1900.

In presenting my fifth Annual Report, I have the honour to state that during the year 1900 I have analysed 136 samples under the Sale of Food and Drugs Act, and 58 samples of water as to their suitability for drinking purposes.

The results of the analyses under the Sale of Food and Drugs Acts are as under :—

NATURE OF SAMPLE.	Genuine.	Adulterated	Inferior, probably adulterated.	Total.
Milk	48	25	7	80
Butter	22	2	...	24
Bread and Butter ...	1	...	...	1
Baking Powder ...	3	...	...	3
Coffee	2	...	...	2
Golden Syrup ...	4	1	...	5
Ice-cream	3	...	...	3
Pepper	4	...	...	4
Brandy	4	1	...	5
Beer	9	...	...	9
	100	29	7	136

For the sake of comparison with previous years, I append the following table of percentages of adulteration for Norwich, and for the Country as a whole : —

Norwich.	1896.	1897.	1898.	1899.	1900.	England & Wales. 1899.
Total percentages of adulteration ...	26·6	16·1	11·0	17	21·3	9·4
Percentage of adultera- tion of milk ...	44·4	27·3	14·9	23	31·25	10·5

It is obvious that these figures reveal a lamentable state of things. The first year after my appointment adulteration was very rife, so much so that the Local Government Board in their Report for 1896 put a black mark against the City. During the two following years matters improved so rapidly that in 1898 the proportion of adulterated articles was returned as little more than the average for the whole country. Since then adulteration has increased till it now stands at more than double the average for England and Wales, the proportion of adulterated milks being three times as many as the average for the country as a whole. Last year I remarked, "The adulteration of milk in Norwich is nearly double even that of London, which has always been consistently high." It is now more than double that of London. It is only fair to point out that it is the state of the Norwich milk supply that is responsible for the ugly look of the above figures. Of every five samples examined during 1900 three were milks, and almost invariably one of these three milks proved to be adulterated. This is really a serious state of things quite apart from the question of fraud. The purity of its milk supply is a most important feature in the public health of a community, especially with respect to the well-being of our child population. In my opinion, the high rate of infant mortality in the City is not unconnected with the unsatisfactory state of its milk supply. Not only does milk skimmed and watered form a starvation diet, but it decomposes much more rapidly than the genuine article.

As far as one can judge from the limited range and number submitted for analysis, other articles of food do not appear to be adulterated to any great extent.

The particulars of the adulterated samples of milk are as under :—

No. of Samples.	Percentage of Added Water.	Percentage of Fat Abstracted.
2	8	...
2	11	...
1	$17\frac{1}{2}$	...
1	19	...
1	$12\frac{1}{2}$	...
1	7	...
1	$27\frac{1}{2}$	...
1	$28\frac{1}{2}$	...
1	$16\frac{1}{2}$	...
2	21	...
1	9	...
1	$5\frac{1}{4}$	...
2	3	...
1	22	...
1	$4\frac{1}{2}$	24
1	$4\frac{1}{2}$	11
1	$12\frac{1}{2}$	$7\frac{1}{2}$
1	12	$33\frac{1}{2}$
1	$3\frac{1}{2}$	16
1	3	5
1	9	$16\frac{1}{2}$
Total 25		

The seven samples of milk returned as of inferior quality were very suspicious, but it was not possible to certify actual adulteration with regard to them.

Two of the samples of "butter" were low-grade margarines containing 97 per cent. of foreign fats. Both were traced to the same man, or gang of men, who apparently had succeeded in establishing quite a connection amongst retailers, by whom the stuff was bought and sold as "dairy" butter.

It was put up artfully in muslin, and stamped with the figure of a most convincing cow. A warrant was issued for one of the men, but without success.

A sample of golden syrup contained as much as 80 per cent. of glucose syrup made from starch, and one brandy as much as $30\frac{1}{4}$ per cent. of added water.

In the summer three ice-creams purchased from Barrows were submitted under the Act. This is a kind of article very likely to be prepared and stored under insanitary conditions, and liable to contain dirty or decomposed materials. The samples in question, however, were found to be good of their class, bacterially clean, made of fresh ingredients, and free from deleterious colouring matters and poisonous metals. It is very desirable that the raw materials of which these delicacies are composed should be boiled previous to freezing in order to sterilize them, and enhance their keeping qualities.

In December, owing to the serious epidemic in the North of England, undoubtedly due to the use of arsenical glucose in brewing, every Public Analyst in the country was busy examining beer and other articles of food likely to be manufactured from glucose. Such articles include sweet confectionery, jellies, jams, syrups, marmalade, lemonade, and vinegar. Nine samples of beer, representing every local brewer, were submitted and found to be free from arsenic. Beer, as well as the articles I have just mentioned, should in future be purchased from time to time, under the Act, and submitted for

analysis. After examining nearly 300 samples of beer purchased in my districts, I feel justified in stating that there is no arsenical beer now on sale in Norwich, or any part of Norfolk and Suffolk.

It seems a pity that no drugs were purchased under the Sale of Food and Drugs Acts in Norwich during the year. In my opinion this side of the Acts should not be neglected. During the year 58 samples of water were submitted for analysis. Of these 34, or 58 per cent., were condemned as dangerous to health, and four were returned as doubtful.

W. LINCOLNE SUTTON, F.I.C.,

*Public Analyst for the City of Norwich, East and West Suffolk,
Ipswich, and Bury St. Edmunds.*

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MUNICIPAL BUILDINGS,

TO THE MEDICAL OFFICER OF HEALTH.

In submitting a summary of the year's work, mention should be made of the gradual change of opinion respecting the conservancy systems which obtain in this city. But a short time ago it was difficult to persuade occupiers and owners that any arrangement could be better than the old fashioned privy middens or bins. All sorts of excuses were used against the water carriage system of removing faecal matter. These excuses are not heard so often now, and there is a disposition on the part of many owners

of property to abolish the filth-retaining system and provide efficient water closets. In dealing with old property many difficulties and complications present themselves. The work necessary in these privy conversions together with reconstructions of drainage systems has entailed a great amount of work on this department. Much supervision and many re-inspections have been necessary, frequently requiring two and three visits per day whilst the work was in progress, and the staff have been working for some time at considerable pressure. It is, however, satisfactory to note that steady progress is being made, and during the year 328 water closets have been fixed and the foul privy bins abolished.

The following is a summary of the work done during the year :—

- 4,620 Nuisances detected.
- 1,387 Notices served by order of the Health Committee.
- 2,460 Preliminary notices served.
- 14,590 Premises re-inspected.
- 3,463 Nuisances have been abated.
- 3,797 Special complaints have been received and the premises inspected.
- 1,052 Letters sent in order to obtain the abatement of nuisances.
- 195 References to the City Engineer.
- 252 ,, ,, Water Works Company.

The following are the principal matters that have been dealt with :—

- 1,051 Orders served to provide efficient privy pans and dust receptacles.
- 521 ,, ,, cleanse and unstop yard drains.
- 326 ,, ,, repair or disconnect rain water pipes.
- 311 ,, ,, efficiently trap yard drain with gullies.
- 270 ,, ,, provide efficient water closets.
- 135 ,, ,, repair defectively paved yards.
- 133 ,, ,, remove and cease to keep animals.
- 118 ,, ,, repair defective water closets.

109	Orders served to remove foul accumulations.
72	„ „ repair defective eaves gutters.
70	„ „ repair defective house roofs, floors, &c.
62	„ „ disconnect sink waste pipes over gullies.
55	„ „ abate overcrowding.
43	Cases of insufficient privy accommodation have been dealt with.
33	Orders served to cleanse dirty houses.
20	„ „ repair defective pumps.
19	„ „ repair defective surface drains.
7	„ „ empty and cleanse foul cesspools.

INFECTIOUS DISEASES.

399	Visits have been paid to infected premises.
223	Rooms have been disinfected upon the removal or recovery of the patient.

Sanitas fluid and carbolic powder disinfectants have, as in former years, been given to householders gratuitously in all cases of infectious disease, and for disinfecting purposes generally.

HOUSE TO HOUSE INSPECTION.

267	Houses and premises have been visited.
181	Nuisances were detected.

YARD AND COURT INSPECTION.

10,408	Visits have been paid to yards and courts.
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The privies and yards found dirty were cleansed at the request of the Inspectors. Other sanitary defects found are dealt with under the term "Nuisances," in a preceding column.

SLAUGHTER-HOUSES.

1,679 Visits have been paid to slaughter-houses.

It was found necessary to caution several occupiers of slaughter-houses respecting the dirty condition of the walls and floors and the non-removal of refuse in accordance with the slaughter-house bye-laws.

MARKETS.

The Fishmarket has been visited and inspected daily, and the Vegetable, Fruit, and Provision Markets on Market Days.

The Inspector on duty every Saturday evening for the purpose of inspecting the meat, poultry, fish, &c., exposed for sale in the Provision Market, and for examining articles of food exposed for sale in the poorer parts of the city, has, on several occasions, found it necessary to deal with various articles of food which were in a condition unfit for the food of man, but such articles have been included in the undermentioned list of unsound food.

UNSOUND FOOD.

The following have been destroyed as being unfit for human food with the consent of the owners :—

- 15 Bags of Cockles.
- 14 Baskets of Shrimps.
- 2 Boxes of Skate.
- 3 Baskets of Prawns.
- 1 Box of Cod-fish.
- 8 Boxes of Coal-fish.
- 3 Stones of Tomatoes.
- 2 Stones of Cherries.
- 2 Cwt. of Pears.

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS ACT.

During the year 136 Samples of Food and Drugs have been submitted for analysis. It will be noted that

there is a high percentage of adulteration in the samples of milk.

Description of Samples.	No of Samples.	Result of Analysis.		Of inferior quality.
		Genuine.	Adulterated.	
Milk	80	48	25	7
Butter	24	21	2	1
Mild Beer	9	9	0	...
Brandy	5	4	1	...
Golden Syrup	5	4	1	...
Pepper	4	4	0	...
Baking Powder	3	3	0	...
Ice Cream	3	3	0	...
Coffee	2	2	0	...
Bread and Butter	1	1	0	...
	136	99	29	8

No. of samples of milk taken on Sundays, 19.

SUMMARY PROCEEDINGS.

In 25 cases proceedings were taken against vendors of adulterated articles :—

21 in cases of Adulterated Milk.

2 in cases of Adulterated Butter.

1 each in cases of Brandy and Golden Syrup.

In 21 of the above cases the magistrates convicted, and imposed fines varying from 5s. without costs, to £4 and 7s. costs.

In 2 cases of Milk and 1 of Brandy the summons were dismissed.

In 9 cases the vendors were written to and cautioned.

Particulars of the prosecutions are given below :—

No.	Date.	Adulteration.	Article.	Fine.
426	Feb. 13th	97 per cent. foreign fat	Butter	£1 and 6s. costs
430	" "	" " "	"	£1 and 7s. costs
431	March 2nd	8 per cent. added water	Milk	£1 and 8s. costs
433	" "	19 " " "	"	" "
434	" "	17 $\frac{1}{2}$ " " "	"	" "
435	" "	11 " " "	"	" "
438	" "	9 " " "	"	" "
449	" 20th	12 $\frac{1}{2}$ " " "	"	10s. and 6s. costs
457	May 23rd	4 $\frac{1}{2}$ " " " and deprived of 24 per cent. of its natural fat	"	5s.
461	" "	12 $\frac{1}{2}$ per cent. added water	"	Dismissed
465	June 16th	30 $\frac{1}{4}$ " " "	Brandy	"
473	" 13th	7 " " "	Milk	7s. 6d. & 8s. costs
474	" "	27 $\frac{1}{2}$ " " "	"	£1 and 8s. costs
493	Aug. 4th	80 per cent. glucose syrup	Golden Syrup	5s.
502	Oct. 9th	8 per cent. added water	Milk	10s. and 6s. costs
503	" "	11 $\frac{1}{2}$ " " "	"	10s. & 8s. 6d. costs
504	" "	12 " " "	"	£1 and 6s. costs.
514	" 30th	28 $\frac{1}{2}$ " " "	"	10s. and 7s. costs
517	" "	3 $\frac{1}{2}$ " " "	"	5s.
519	" "	16 $\frac{1}{2}$ " " "	"	10s. and 8s. costs

No.	Date.	Adulteration.	Article.	Fine.
521	Oct. 30th	12 $\frac{1}{4}$ per cent. added water	Milk	10s. and 9s. costs
527	" "	9 " " "	"	Dismissed
538	Nov. 26th	4 $\frac{1}{2}$ " " "	"	5s. and 8s. costs
547	Jan. 1st, 1901	21 " " "	"	£1 & 10s. 6d. costs
550	Jan. 1st, 1901	22 " " "	"	£4 and 7s. costs

For refusing to sell a sample of milk, a person was fined £1 and 6s. costs.

WATER ANALYSIS.

58 Samples of Water have been taken from pumps and draw wells.

34 Samples were certified to be "unfit for drinking purposes," and injurious to health.

24 Samples were certified "passable."

In 33 cases the owners have supplied their premises with the Water Works Company's Water.

In the other case the owners have made arrangements whereby a proper supply is provided to the premises.

INSUFFICIENT WATER SUPPLY.

In 32 cases notices have been served on owners to provide their premises with a proper supply of water.

COWSHEDS, DAIRIES, AND MILKSHOPS.

218 visits have been paid to Cowsheds, and

696 to Milkshops and Dairies.

69 Cowsheds, etc., have been limewashed at the request of the Inspectors.

COMMON LODGING HOUSES.

The Common Lodging Houses have been visited weekly, and were found to be conducted in a fairly satisfactory manner.

HOUSES LET IN LODGINGS.

783 visits have been paid to Houses Let in Lodgings, and 293 Rooms have been limewashed.

SMOKE OBSERVATIONS.

39 Smoke Observations have been taken.

It has been necessary to caution several manufacturers and firemen, and recommend the use of a better class of coal and the exercise of greater care in firing.

BAKEHOUSE INSPECTION.

441 visits have been paid to Bakehouses, and 250 have been limewashed by order of the Inspectors.

MARGARINE ACT.

279 inspections have been made of premises under this Act, with a view of ascertaining if Margarine was sold, and the requirements of the Act were carried out.

FACTORIES AND WORKSHOPS.

The undermentioned are the insanitary conditions that have been dealt with at the above class of premises :—

- 30 Water Closets have been provided.
- 5 Workshops have been cleansed and limewashed.
- 3 Water Closets have been repaired.
- 3 Roofs and Floors of Workshops have been repaired.
- 2 Staircases have been repaired.
- 1 Privy Pan Closet has been fixed.
- 1 Urinal has been fixed.

SCAVENGING.

As a result of the abolition of many Privy Bins, the amount of Privy Bin Refuse is now a diminishing quantity. During the year 19,456 Loads of Privy Bin Refuse were removed by the Night Waggons and 12,046 Loads of House Refuse by the Dust Waggons in the daytime. This shows an increase of 1826 Loads of House Refuse on the preceding year.

I am, dear Sir,

Obediently yours,

JOSEPH BROOKS, ASSOC. SAN. INST.,

Chief Sanitary Inspector.



